DOCUMENT RESUME

ED 146 719 EC 102 697

AUTHOR Cordellos, Harry C.
TITLE Aquatic Recreation for the Blind.
INSTITUTION American Alliance for Health, Physical Education, and Recreation, Washington, D.C.
SPONS AGENCY Bureau of Education for the Handicapped (DHEW/OE), Washington, D.C. Div. of Innovation and Development.
REPORT NO 447AH50022
PUB DATE Jul 76
GRANT G007500556
NOTE 133p.; For related information, see EC 102 692 - EC 102 698
AVAILABLE FROM Physical Education and Recreation for the Handicapped, Information and Research Utilization Center (IRUC), 1201 Sixteenth Street, N.W., Washington, D.C. 20036 ($7.95)

EDRS PRICE MF-$0.83 Plus Postage. HC Not Available from EDRS.
DESCRIPTORS *Adapted Physical Education; *Blind; Partially Sighted; Physical Education; *Recreation; *Swimming; Swimming Pools; Teaching Methods; Visually Handicapped

ABSTRACT

The sixth in a series of booklets on physical education and recreation for the handicapped describes aquatic activities for blind persons. Written by a partially sighted athlete, the document discusses swimming pool characteristics and special pools for the visually impaired. Qualities of swimming instructors are reviewed, and suggestions for teaching swimming, diving, survival swimming, lifesaving, small craft use, water skiing and skin and scuba diving are given. Two final chapters focus on recreational swimming (including stunts and water games) and new goals for the blind in aquatics (such as participation in synchronized swimming and aquatic competition). (CL)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ED146719

Aquatic Recreation for the Blind

Harry C. Cordellos

Prepared and Distributed by:
Physical Education and Recreation for the Handicapped
Information and Research Utilization Center (IRUC)
1201 Sixteenth Street, N.W., Washington, D.C. 20036

Sponsored by:
AMERICAN ALLIANCE FOR HEALTH, PHYSICAL EDUCATION AND RECREATION

A Project of:
Bureau of Education for the Handicapped
Division of Innovation, and Development
U.S. Office of Education, Department of Health, Education and Welfare

ED146719

U S DEPARTMENT OF HEALTH
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

AQUATIC RECREATION FOR THE BLIND

By

Harry C. Cordellos
Lecturer/Demonstrator
in
Adaptations by the
Visually Impaired In
Recreation, Sports, Crafts,
Physical Fitness, and Health

Prepared and Distributed by: Physical Education and Recreation for the Handicapped: Information and Research Utilization Center (IRUC), 1201 Sixteenth Street, N. W., Washington, D. C., 20036

Sponsored by: American Alliance for Health, Physical Education and Recreation

A Project of: Bureau of Education for the Handicapped, Division of Innovation and Development, U. S. Office of Education, Department of Health, Education and Welfare

EC102697

July 1976

The project presented or reported herein was performed pursuant to a Grant from the U. S. Office of Education, Department of Health, Education, and Welfare. However, the opinion expressed herein do not necessarily reflect the position or policy of the U. S. Office of Education, and no official endorsement by the U. S. Office of Education should be inferred.

GRANT Number: G007500556
PROJECT Number: 447AH50022

ACKNOWLEDGEMENTS

No goal is too high if we
climb with care and confidence.

We are honored and privileged to introduce Harry C. Cordellos through this publication, Aquatic Recreation for the Blind. Harry Cordellos speaks from experience and from a most important vantage point--he is totally blind. Harry Cordellos has known the effects of both an active life and an overprotected one. From his first ride on water skis, he was convinced that there is some physical recreational activity for everyone. Harry Cordellos feels that neither age nor physical impairment should ever be used as a reason for an individual not being active.

Harry Cordellos was born blind with glaucoma. After several operations, he was able to see for about twenty years. However, he lost partial vision again and further operations were not successful.

Special orientation training made it possible for him to attend City College of San Francisco where he received an associate of arts degree in education. A bachelor's degree in recreation and master's degree in physical education were earned at California State University at Haywood. He was introduced to a variety of sports and athletic activities while at California State where he learned to play golf, bowl, swim, dive, and skin and scuba dive. In addition, he took part in lifesaving, water safety, gymnastics, and long distance running programs.

While at the Orientation Center for the Blind, he first participated in an aquatic activity--water skiing. Because of the exhileration and excitment of water skiing, he decided that he must learn to swim. Strong conviction in the values of swimming led Harry Cordellos to explore as many aquatic activities as possible. Because he felt that these experiences and self-confidence resulting from them must be shared and not kept to himself, writing a book on this subject became one of his highest goals. Adding to personal participation have been experiences teaching aquatic activities to other visually impaired and disabled persons. While at California State University, he competed in diving events off both one and three meter boards. In addition, he is certified by the American National Red Cross in water safety instruction and lifesaving.

After graduation he joined the San Francisco Dolphin Swimming and Boating Club which conducts swimming events in San Francisco Bay. In addition to participating in usual club events as its first blind member, he competes annually in the Golden Gate Swim which begins at the San Francisco shore and finishes across the Golden Gate on the Marin County shore.

Since 1968 Harry Cordellos has been active in competitive long distance running. He runs in races over roads and on cross country courses, in distances from one mile to marathon. He has run in the Boston marathon six times and in 1975 became the first blind runner to complete the distance in less than three hours--two hours, 57 minutes, 42 seconds!

In early 1965 Harry Cordellos was introduced to cross country skiing and has skied in competition in Colorado, Minnesota, and Valches, Norway. Distances have ranged from four to twenty-five kilometers. All events have been international races involving blind and other disabled athletes.

Harry Codellos has a strong interest in creative arts and crafts involving wood, plastic and metal. He has developed techniques which permit him to use power tools with safety and confidence. His latest new challenges include tandem bike riding, hang gliding (only under ideal wind conditions), and beep baseball. When not enjoying one of his favorite sports, Harry Cordellos is often giving guest lectures to schools, colleges or service clubs. He has taught university extension courses dealing with adapted techniques for physically impaired persons and a course in arts and crafts.

Obviously there are many reasons for his wide interest in such a variety of sports and recreational activities. Harry Cordellos states simply, "I have found confidence and just plain and simple enjoyment in sports activities. I have long felt that the handicapped are over protected and either run away from potentially valuable recreation experiences or they are scared away by many well-meaning but negative attitudes regarding safety. My feeling is safety first. This does not mean abandon everything that seems dangerous. It simply means explore everything and find safe and practical adaptations to anything which may seem impractical or dangerous."

Yes, Harry Cordellos speaks with authority and experience that give Aquatic Recreation for the Blind a unique dimension. His practical, common sense, safety-first emphasis make techniques and approaches more meaningful for and applicable to persons wanting to initiate, expand, or enrich aquatic programs and activities for blind and partially sighted participants. Actually everyone teaching aquatic activities will find greater understanding and broader insight into aquatic activities by using many of these techniques with all students, visually impaired or sighted; they will find themselves more sensitive and better teachers. This publication is going to result in many blind and partially sighted persons having higher quality lives worth living from active participation in aquatic activities. To Harry Cordellos, our thanks, appreciation, and gratitude for your dedication, commitment, and outstanding professional contribution. Thanks, good luck, and continued success in all that you do.

Julian U. Stein, Director
IRUC and AAHPER Consultant
Programs for the Handicapped

PREFACE

The purpose of this book is to point out some of the many aquatic activities which are possible and highly practical for blind and partially sighted persons, and to discuss how these activities can be presented to them with a minimum of problems and no increased risk to their personal safety. In view of the relatively limited progress by blind and partially sighted persons in this field, it is hoped that this book stimulates interest on the part of instructors and visually impaired individuals alike. It is further hoped that various aquatic activities presented are soon enjoyed by the many blind and partially sighted persons who want and need the challenges and self-confidence which are brought about through participation in these recreational activities.

Opportunities for blind and partially sighted persons in aquatics, both present and future, are not completely defined within the pages of this book. This material is simply a framework or outline based on aquatic experiences which are already possible and practical, but which are enjoyed by a relatively limited number of visually impaired individuals. I hope that this framework is continuously built upon by the imagination of forward looking individuals who are instructors of blind or partially sighted students who face the challenges ahead.

The concept of normal aquatic recreation for visually impaired persons is not a new one. It has probably been conceived hundred of times in the past by imaginative individuals, and will probably continue to come up again and again in the future. Unfortunately such experiences usually have occurred in isolated situations and never really had enough momentum to develop into established programs. For every impaired or disabled person who accomplishes a new skill or degree of success, word usually does leak out to a few individuals in the immediate vicinity. However, the newness wears off, the idea fades, and the whole concept is then completely lost again until somebody else rediscovers it.

After realizing the tremendous impact of aquatic activities on self-confidence, good health, and physical fitness, it became immediately clear to me that this new and exciting area of recreational opportunity should not be lost or buried once again with the hope that somebody else may rediscover these ideas at a later time. There was an obvious need for gathering these skills and methods of learning into book form, not only for visually impaired individuals interested in learning about new activities but also for the benefit of those who work with blind and partially sighted persons in recreation programs.

Water activity is highly recommended for the great majority of impaired and disabled persons; visually impaired individuals are certainly included in this group. So now we have arrived at a most important reason for writing Aquatic Recreation for the Blind. Material in pages which follow is not a personal account of one man's experiences in a variety of aquatic recreational activities. While I have had experience in all of the activities presented, each of the skills discussed is also being successfully accomplished by numerous blind and partially sighted individuals throughout the United States, as well as in other countries around the world.

All of the ideas and methods promoted in this book have been scientifically and successfully tested and proven to be highly practical and effective. It would be false to assume that another book similar to this at a later time might not have even more effective means of teaching aquatic skills to visually impaired persons. However, most significant at this time is that all of the methods presented have been proven safe--and they do work. Emphasis now and hopefully in all programs and books to follow is to be safety first.

Harry C. Cordellos
San Francisco, California

TABLE OF CONTENTS

The World of Water Recreation 1
Aquatics and Visually Impaired Persons 1
Exploring the World of Aquatics 4
Defining our Goal 5

Practical Pools for Visually Impaired Persons 7
Swimming Pool Characteristics 8
Size and Shape 8
Pool Bottoms and Depth Ranges 9
The Pool Deck 9
Scum Gutters 9
Wall Ladders 11
Pool Environments 11
Diving Boards 12
Shower and Locker Rooms 12
Special Features 13
Special Pools for Special Purposes 13
The Instructional Pool 13
Pools for Competition 15
The Diving Pool 16
The Multiple Pool Complex 16
Summary 17

Who Teaches Aquatics and How 19
The School or College Instructor 19
The Volunteer Instructor 20
The Coach or Skilled Athlete 20
The Qualities of a Good Instructor 21
Class Arrangement 22
The Specialized Class for Blind Students 23
The Blind Student in a Normal Class 23
Summary 24

Swimming: The Foundation for Water Confidence and Safety 25
Teaching Swimming to Blind Individuals 26
Adjusting to a New Environment 26
Building Confidence with Swimming Skills 27
Special Problems for Blind Swimmers 30
Water Orientation 30
Collisions with Walls and Other Swimmers 30
Problems Peculiar to Styles of Swimming 31
Putting New Skills to Use 32
Summary 32

Learning to Dive 33
Values and Objectives 33
Diving Restrictions 34
Diving from the Edge of the Pool 34
Partial Vision and When to Use It 35
Orientation to the Diving Area 35

ERIC

Swimming Ability..... 35
Progressing to a Standing Dive..... 36
Springboard Diving..... 38
Special Problems for Consideration..... 38
Diving from the One-Meter Board..... 41
Control of the Body in Flight..... 43
The Three-Meter Board..... 44
Clown Dives..... 46
Flying Seat Drop..... 47
The Preacher's Seat..... 47
The Can Opener..... 47
Cannon-Ball..... 48
The Importance of Visual Imagery..... 48
Safety Tips for the Blind Diver..... 49
Safety in and Around the Pool..... 49
Safety on the Diving Board..... 50
Summary..... 51

Survival Swimming and Lifesaving..... 53
Forming a Healthy Attitude Toward Aquatics..... 54
Training Programs..... 55
Objectives of Survival Swimming and Lifesaving..... 56
Special Problems for Blind Persons in Lifesaving..... 59
Practical Application of Technique..... 60

Small Craft Safety and Instruction..... 63
Getting Aquainted with Small Craft..... 64
Orientation on Land..... 66
Boating Safety and Instruction in the Water..... 67
Attitudes Toward Boating..... 68
Water Instruction..... 68
Learning Fundamentals..... 69
Adaptations for Sailing..... 70
Special Problems for Blind Persons in Boating..... 70
Why Boating for Blind Persons?..... 72

Water Skiing..... 75
The Equipment and How it Works..... 76
Skis..... 77
Ski Tow Ropes..... 79
The Life Preserver..... 79
The Water Ski Start..... 80
The Simulated Start..... 82
The Blind Skier Behind the Boat..... 84
Commands from the Boat Operator..... 85
Commands Given by the Skier..... 85
Skiing with a Partner..... 86
The Starting Command..... 87
Variations in Water Skiing..... 87
Safety in Water Skiing..... 88
Safety in the Boat..... 88
Making the Start..... 89
General Safety Habits..... 89

Speed and Falling 89
The Equipment 90
Summary 91

Skin and Scuba Diving 93
Why Skin and Scuba for Blind Persons 93
Learning Skin and Scuba Diving without Sight 94
The Certified Courses 95
The Non-certified Courses 95
Preparing for the Class 96
Special Problems in Skin Diving 97
Problems in Scuba Diving 99
Practical Assignments 100
Summary 102

Recreational Swimming and Water Games 103
Swimming in a Crowded Pool 103
Using the Diving Pool and its Equipment 105
Stunts and Water Games 106
Diving for Objects 107
Marco Polo 107
Walking on the Walls 108
Playing Catch 109
Song and Rhythm Games 110
A Diving Stunt 111
Summary 111

New Goals for Blind Persons in Aquatics 113
Reviewing Progress 113
Setting New Goals 115
Thinking about the Future 116
Synchronized Swimming 116
Aquatic Competition Involving Blind Athletes 118
Blind as Instructors in Aquatics 119
Advancing Beyond Present Skill and Knowledge 120
Open Water Swimming 122
With a Goal in Mind 124

Epilogue 125

THE WORLD OF WATER RECREATION

There are none so blind as those who will not see.
Peter Matthew Henry

Water has long been and will probably continue to be one of the most widely used natural resources to meet man's recreational needs. Years ago it may have been true that aquatics consisted mainly of swimming, boating, and fishing. However, because of man's desire to have fun in, on, or near the water, this field has expanded to include many other activities.

With development of modern equipment, facilities, and much needed safety education, listed aquatic activities along with numerous others are now enjoyed by a constantly increasing number of water enthusiasts. With increase in number of heated swimming pools, Learn-to-Swim programs such as those offered by the American National Red Cross and other organizations are now possible and conducted year-round, even out-of-doors. Just twenty years ago water skiing was considered an activity for only the most daring. Today this activity is enjoyed safely by thousands and its popularity continues to increase.

The wide variety of boats available today, including those which can be propelled by paddles and oars, sails, or motors, has opened up not one but many opportunities for recreation on the water. Fisherman are no longer restricted to piers, rocks, or banks but depend more and more on small craft to take them where the fish are; no longer do they have to depend upon fish to come to them!

One only need visit a beach on a warm day to notice the impact that surfing has had on those who seek recreation in the water. Skin and scuba diving equipment has also been improved, and because of its availability, increasing numbers of individuals now experience a whole new world of adventure beneath the surface of the water.

With increased popularity of all aquatic sports, there has been a need for proper instruction and increased safety education for all who participate. Films, lectures, and instructional programs are now abundantly available in these and other areas of aquatic recreation.

Aquatics and Visually Impaired Persons

A wide variety of recreational activities are possible in, on, or near the water; their increasing popularity has been briefly introduced. Since this book is intended to encourage visually impaired persons to participate in aquatic activities, several questions immediately come to mind:

What have blind and partially sighted persons been able to do in this area?

FULL PARTICIPATION

The goal of full participation by blind and partially sighted individuals in regular aquatic recreation activities is a reality. A world of opportunity awaits all individuals who are willing to face these challenges.

How practical is activity around the water for a blind person? One who is partially sighted?

What is meant by the term blind?

Obviously there are countless other questions which are still unanswered or there would be no purpose for a book such as this.

It has become evident that progress and participation of visually impaired persons in aquatic activities have lagged far behind progress and participation of others. A major part of this lag has been caused by traditional beliefs and misconceptions connected with blindness. Traditional attitudes such as the blind are in a world of eternal darkness, blindness is synonymous with helplessness, blind persons are severely handicapped and therefore should be carefully watched in all of their activities, promote these misconceptions, reenforce concepts of the helpless-hopeless blind and do nothing to create a favorable image. Fortunately swimming has been included in many recreation programs for blind persons. In addition, some camps for visually impaired participants have also included small craft activities such as rowing in rubber rafts or small rowboats.

In recent years various magazine and newspaper articles have reported about blind persons who successfully performed other aquatic skills as well. One activity which has proven highly practical from the standpoint of recreational enjoyment and confidence developed is water skiing. Some members of a recreation center for the blind in the eastern United States were taught scuba diving. While such reports are encouraging, for the most part aquatics simply means swimming to the general public. Material in chapters which follow is designed to change this concept.

The question of whether or not aquatic activity is practical for blind and/or partially sighted persons goes back to one of attitudes. Unfortunately, all experiences in water are not pleasant ones. A nonswimmer who falls from a fishing pier or from a boat may have fears which last a lifetime; each year many tragic accidents occur in and around water. However, most of these usually occur as a result of carelessness or lack of proper judgement. Therefore, in the opinion of a great many people if an activity is obviously dangerous for the general public, it should be even more so for one who cannot see.

Many functions performed every day by blind individuals were in the past also considered impractical if not impossible. Crossing a busy intersection is quite a challenge to the average person with eyesight. It seems inconceivable to many that one can handle such a situation safely without eyesight. However, today thousands of blind persons safely and scientifically cross busy intersections to and from work, school, recreation programs, and during the course of other regular daily activities. Whether or not aquatic activities are practical for blind persons should be determined in the same ways as any other new activity is determined to be practical or impractical--to what degree does it really require eyesight? If an activity actually does depend upon vision for successful performance, most people agree that such an

activity is not practical for blind individuals. However, if other senses or a modified technique can accurately be substituted for eyesight, that activity is no longer impractical or impossible. If an individual benefits from such participation through skill development, confidence, or just plain personal enjoyment, that activity is not only possible but also a highly practical one.

The third question raised earlier is probably the most significant--What is meant by the term blind? To the general public, blindness means total absence of light or total darkness. However, the legal definition of blindness states that a person with approximately ten percent vision in the better eye after correction with glasses or one with an angle of vision less than twenty degrees is also blind. This distinction is mentioned here because it often has been unintentionally a source of severe disappointment for many totally blind individuals. In reporting accomplishments achieved by legally blind persons, often no mention has been made that an individual did depend on partial vision to attain a specific goal. Totally blind individuals are often enthused about such achievements, attempt to do the same things themselves and suddenly are made aware that such activity was impossible without some partial vision.

This point is emphasized to eliminate any doubt on the part of the reader as to whom material in this book is intended to benefit. As the title implies, Aquatic Recreation for the Blind is for ALL visually impaired individuals, not just a certain few. All skills presented have been accomplished successfully without any visual cues. This should present no problems to a student with partial vision since some preliminary explanations necessary for totally blind participants may be modified or completely eliminated in some cases.

Exploring the World of Aquatics

As indicated in the previous section, providing more opportunities for blind and partially sighted persons in aquatic recreation involves more than simply reporting that certain aquatic accomplishments have been achieved by impaired and disabled individuals. However, such reports should not be disregarded. In reality it is because of such accomplishments that a book of this type has been made possible. Moreover, to a blind person who is already active, self-confident, and constantly seeking new challenges, simply relating that a visually impaired person can dive or water ski is only the beginning. More than likely an immediate response might be how could he/she learn to do this? Yet for blind persons not ready to face such challenging experiences, participation in some other form of aquatic activity may be just what is needed to boost self-confidence and help each fit more naturally into the normal pattern of daily living. This is itself has long been the goal of most impaired and disabled individuals.

If all blind individuals are to have opportunities to explore the field of aquatics and gain proficiency in those activities which they favor most, a few important steps must be considered. There is need for good instructors--individuals not restricted by traditional beliefs concerning blindness and willing to face new situations and solve problems

along with the blind student. There is also need for a thorough understanding of available equipment and accessible facilities. Obviously a sound program for blind persons could not be promoted unless one knows what can realistically be offered and problems with which to be concerned.

More than likely, the most important consideration is personal safety of participants. While it is not necessary to be extremely over-protective toward blind persons, lack of eyesight does present some problems which should be considered in planning and conducting aquatic programs. In any aquatic program, emphasis should be on making it safe, but still fun and challenging. If any aquatic program is truly worthwhile; it must be safe for everyone, whether participants can see or not.

Defining our Goal

With the above considerations in mind, we are now ready to explore some new recreational activities for visually impaired persons. To some readers some activities presented can be recognized as having already been accomplished by blind persons. To others all activities with the possible exception of swimming may seem completely new and unusual. However, remember that the purpose of this book is not simply to mention certain activities that can be done by blind and partially sighted persons but rather to describe how they can be done. This is not limited to physical instruction of activities, but includes discussion and solving of various problems which may arise and are unique to each of the aquatic skills.

Skills presented by no means represent upper limits a blind person can expect to reach in aquatics. As pointed out later, knowledge and confidence gained from these activities are often sufficient to open up still more areas of aquatic recreation for blind and partially sighted individuals. Personal goals of visually impaired persons in this area are as varied as the field of aquatics itself. While some participants may achieve maximum benefit from learning only one activity, others may decide to try for success in several or all of them. For those who serve as instructors or directors of these activities, one common goal should be apparent--promote all aquatic activities for visually impaired persons and open up as many branches of this field to them as possible. With these challenges before us, let's explore the world of water recreation.

PRACTICAL POOLS FOR VISUALLY IMPAIRED PERSONS

The only things which become problems are those things which you allow to become problems.
Steve Sellitti

Although several forms of aquatic activities do not normally take place in swimming pools, design and characteristics of these facilities are given special attention as they play a significant part in many phases of water recreation. Besides providing settings for a great many water activities, swimming pools can be ideal for water skill instruction. Since a pool is usually much easier to supervise, keep clean and safe than an open waterfront, introductory phases of instruction in activities such as canoeing, skin and scuba diving, and even water skiing have been conducted with a high degree of success in swimming pools.

With a gradual trend toward developing adapted physical education programs for blind students, and with the wide variety of facilities at which such programs are conducted, some positive and negative features of these facilities need to be discussed so that more practical programs can be developed for visually impaired persons. Since swimming has been highly recommended for the great majority of impaired and disabled individuals, and since it greatly minimizes effects of a condition such as blindness, it seems logical that such activities should be presented in as safe and practical atmosphere as possible. Generally speaking, safety in, and around a pool should be of primary importance, regardless of who uses the facility. If a pool is really safe for sighted persons, it should automatically be safe for visually impaired individuals. However, a few unintentional features of pool design present special problems to visually impaired swimmers. It is not intended that all pools to be used by blind swimmers be specially constructed for their needs. However, it is the purpose of this discussion to point out some features of swimming pools which may assist pool directors and instructors in planning for more successful integration of blind and partially sighted swimmers into their pool programs.

A major reason for not recommending special pools for such programs has been supported by several pool directors and instructors who have worked with visually impaired persons. If they learn in special pools under specialized conditions and with special equipment, they are probably in more danger when they enter a normal pool than if they had no instruction at all. Since all special features would no longer be present, one would only have confidence and safety when swimming at the pool in which one learned to swim. Most favorable characteristics which are significant enough to be of use to blind swimmers should probably be included as standard equipment in all public pools. As indicated previously, if a particular feature is worth having for the general safety of those who use a facility, it benefits everyone--impaired or disabled or not.

To understand further many problems and situations faced by blind and partially sighted persons in the wide variety of swimming facilities in operation today, observations made by these individuals as well as experiences

of those who conduct programs for them need to be considered. Over the past several years, a considerable number of aquatic programs have been conducted in which blind and visually impaired persons have been involved, either in special classes or as part of regular recreational programs. Purpose of the following material is not to discourage use of one particular pool in favor of another because of one or possibly several negative features. As mentioned earlier, it is highly impractical to design a swimming pool specifically for blind or partially sighted persons. If a particular facility does have some negative characteristics, it may still be an ideal setting for instruction or recreational swimming by blind individuals as long as those who use that facility are aware of such problems and either avoid them completely or make necessary adaptations.

Swimming Pool Characteristics

To speak of one particular type of swimming pool as being normal or standard is extremely difficult. Kinds of pools that one may find in use today are as varied as purposes which they serve. Therefore, it seems much more practical to discuss individual characteristics rather than entire facilities.

Size and Shape. Of all characteristics of swimming pool design, size and shape probably allow for the widest variations. To say that a pool is large or small, narrow or wide, is meaningless unless there is a standard with which it can be compared. Generally speaking, a pool which measures seventy-five feet in length by forty-two feet in width is considered to be a standard size. However, even this definition must be modified depending upon the number of people a particular pool is to serve. Obviously, an average size pool for a private organization would be somewhat smaller than a pool designed to serve a large community. For purposes of this discussion, a small pool is significantly smaller than one with the above dimensions while a large pool is significantly larger.

As for shape, there are too many shapes in swimming pool design to be mentioned. Since the major concern of blind swimmers in many modern and abstract shape pools is orientation, and since pool orientation is to be discussed in detail in a separate section, we are concerned at present with conventional shapes--square, rectangular, or some shape similar to these. Both small and large pools have been used successfully for instructing blind students. Since the area for instruction should be carefully supervised in any well planned program, there is no reason for one pool to be considered more or less favorably than another. Possibly the only point to consider when a pool is used by others is seeing to it that those not involved in classes are not allowed to interfere with students being instructed. As for recreational swimming, most experienced blind swimmers have found that the larger the pool, the more difficult it becomes to maintain a straight course while swimming. Therefore, until sufficient confidence of one's ability in water is gained, activities should be confined to the shallow end or small pool; in a larger pool, one should swim near the side with a partner who can give directions to the rail or gutter if the swimmer must stop or rest.

Pool Bottoms and Depth Ranges. While contours of pool bottoms and ranges of depths vary along with design of pools, a standard size pool (seventy-five feet by forty-two feet) normally ranges from approximately three feet at the shallow end to nine feet at the deep end or deeper if a high diving board is present. Whether the shallow area is long or gradually slopes from shallow to deep, it is generally agreed that there should be no sudden drop-offs from shallow to deep water since a sighted person walking along in shallow water is not always able to determine when a pool gets deep. The bottom of a pool should slope gradually.

Contrary to design of many pools, some of which are quite modern, the deepest point in a pool should not be confined to the immediate area directly beneath diving boards. Deepest points should extend out several feet in front of the end of the diving board to allow for dives which are not vertical.

The Pool Deck. The deck or area immediately surrounding a pool is usually as important from a safety standpoint as the pool itself. While practically all swimming facilities have a standard rule of no running on decks, accidents do occur occasionally and they are not always the fault of the swimmer. Most pool directors agree and it has also been observed by many blind swimmers that the ideal edge for a swimming pool is one that is raised or of somewhat different texture from the area surrounding it. In many of today's modern pools, a tile border which is raised approximately one inch and extends back approximately two feet from the edge of the pool itself is considered as part of standard design. In other pools, the texture of the concrete on the pool deck changes and slopes upward to a lip which hangs over the edge of the pool. In any case, a swimmer, whether blind or sighted, is given ample warning of the edge of the pool should attention be attracted to some other activity at the time.

The flat area immediately surrounding the edge of the pool lip or border should never be smooth concrete. This is a definite hazard which has accounted for many slipping accidents. With a rough or semi-rough textured surface around the pool, danger of slipping is almost completely eliminated even when the feet are wet.

Scum Gutters. The overflow troughs or scum gutters which surround most modern pools present no problems to a blind person. Gutters are usually built back into the walls. Since no portion of the rail extends out over the water there is no danger of bumping one's head when coming up near a wall. However, in some older pools a less practical scum gutter is used in which the trough is built out over the edge of the pool wall. This type of design is somewhat hazardous to all swimmers; however, when blind swimmers are made aware of such situations, they more than likely adapt immediately and have no particular problems with them.

Another type of overflow trough in use today is the swim-out ledge. In this arrangement, water from the pool washes over a small lip at the edge of the wall onto a ledge which extends approximately one foot back from the pool wall itself. Beyond this ledge is a gutter approximately six inches wide and six inches deep. Beyond the gutter is a rise of another three to four inches to the pool deck. Besides making it possible for one

PRACTICAL POOL DESIGN

MODERN POOL DECK SAFE AND PRACTICAL...This raised non-skid tile border is part of the standard design of the pool. While its purpose is to minimize the possibility of swimmers with wet feet from slipping or falling when nearing the pool, it is especially helpful in letting a blind swimmer know when he is nearing the edge of the pool. Although the tile is only one inch higher than the main portion of the deck, it is noticeable enough to warn all swimmers that they are close to the water and to move with caution.

to feel the temperature of the water in advance of plunging in, many blind swimmers have favored the swim-out ledge because it makes climbing out of the pool much easier than crawling up over usual scum gutters or trying to search around for a wall ladder.

Wall Ladders. As with other types of swimming pool equipment, ladders have gone through many stages of change and improvement. In some older pools in operation today, ladders for entering or leaving the pool are made of pipes or metal rungs. They are usually mounted vertically in the pool a few inches from a wall. Another type is also made of metal; however, steps are flat like regular ladder steps. In some modern pools, hand rails which are present with all ladders curve down and stop at the scum gutter rather than extending below the surface where one might strike him/herself on metal parts while swimming. Steps are simply small shelves cemented or molded into the wall of the pool. A further modification of this type is a ladder in which all steps are recessed into the wall.

Reasons for these improvements should be apparent when one examines the four types of ladders and the order in which they have been presented. By gradually getting the ladder further and further out of the way of swimmers, there is much less chance of accidentally striking the head, arms, or legs on protruding rails or vertical supports. Obviously, these improvements have been extremely favorable to blind and partially sighted persons as they have eliminated another source of trouble.

Pool Environment. While a great many characteristics could be included, of major concern is the physical location of a pool, whether indoor or out, and whether heated or unheated. With increased construction of heated pools, swimming is becoming more and more a year-round sport, both indoors and out. Since beginning swimmers are usually relatively inactive in early stages of instruction, and since they spend much time standing and listening as opposed to continuously moving through the water, there is almost always a tendence for shivering. This is especially true with many impaired or disabled swimmers including visually impaired individuals as their movements are often slower and less vigorous until they gain sufficient confidence in the water. For this reason, a heated pool is more suitable for instructional purposes. Since almost continuous vigorous activity is necessary in an unheated pool for one to keep comfortable or warm, most swimmers continue to favor a heated pool unless under special circumstances, such as in the outdoors in an extremely warm climate.

Whether an indoor or outdoor pool is more favorable to blind persons is not an easy question to answer. Both types of pools have advantages and disadvantages as observed by blind swimmers in both situations. One of the first noticeable advantages of an indoor facility is that swimming becomes a year-round sport for must everyone. There was no reason to be concerned about bad weather interfering with swimming classes or a chilling wind blowing against one's body when traveling between pool and locker room area. Swimming is not restricted to the popular hours of the day; courses can be offered in the evenings when the pool is not likely to be as crowded.

One major disadvantage of an indoor pool noted by blind persons is the noise factor, especially in large or crowded pools. Although the communication

problem can be minimized by keeping instructors and students close together in a specified area of the pool, noise from a large crowd in the water does become distracting, and in many cases, extremely confusing to a blind swimmer attempting to maintain orientation in the water.

In some indoor facilities designed specifically for teaching, an instructional pool can be completely closed off from recreational swimmers and thus the noise factor is eliminated. Possibly the major advantage of the outdoor pool is the greatly reduced noise level. Even though swimmers shout louder and make more noise in an outdoor pool, sound are deadened as there are no walls or ceilings from which noise can rebound into the pool. Sounds which are noticeable, such as rattling of diving boards or music from a speaker on the pool deck, are clear and undistorted and can serve as excellent reference points for orienting blind swimmers to the pool area.

One possible disadvantage of an outdoor facility is that weather conditions often play a part in the activity program. If a pool is heated, however, lessons or recreational swimming may be enjoyed even under many adverse weather conditions, although the walk to or from the locker room may become a little chilly or uncomfortable at times.

Diving Boards. Since diving is to be discussed in detail in Chapter V, specific procedures and adaptations for a blind person to use a diving board are not presented at this time. Of major concern here is the fact that although springboards are usually standardized at heights of one, or three meters, their design and construction usually vary somewhat. Positioning of handrails and degree to which diving boards extend beyond the edge of a pool all deserve consideration. On some low diving boards (one meter, or less) there are often no handrails at all. While it may sound somewhat hazardous at first for a blind person to use a diving board with no handrails, boards of this type have presented no problems to blind or partially sighted divers. A closer look at the situation shows that with no handrails in the way, a blind diver may mount the board as close to the edge of the pool as possible, thus making the distance to be traveled on the narrow board as short as possible and therefore minimizing danger of falling.

Shower and Locker Rooms. Arrangement of showers, lockers, rest rooms, benches and other locker room equipment present no more problems to blind persons than to anyone else. In most cases, such facilities are designed to make the most practical use of the space and to provide for the best possible means of getting people through the facility.

To a blind person, regardless of locker room design, it is simply a matter of getting used to the surroundings just as in any other situation. One specific problem which requires special attention on the part of blind persons is the texture of floors in shower and locker rooms. These facilities may have smooth slick concrete floors, concrete surfaces which have roughened textures, or in some cases, such as in shower areas, tile floors. The smoother and more slick a surface the easier it becomes to slip, especially when the feet are wet. While blind persons do not slip any more than anyone else, if an accident occurs, a blind person is at somewhat of a disadvantage not being able to see where to reach for something to steady him/herself in regaining balance. While this situation could be a

source of several problems, swimming programs have been conducted for blind persons at facilities with smooth floors. The problem has been successfully handled by instructing students beforehand to walk cautiously and land on the toes first rather than placing the heel on the floor first as in normal walking.

Having a locker room on the same level as the pool area is not only practical for visually impaired persons, but is also safer for everyone else. Traveling on stairways is extremely dangerous when the feet or stairs are wet. Where this is necessary, one should always use handrails. In some facilities, there may be only one or two steps from showers to locker room, or from locker room to pool deck. These still require walking with caution; however, they present no serious problems to blind individuals.

Special Features. In many pools which are used for multiple purposes, there may be pieces of equipment in or around the pool which seem permanent but actually are quite portable. These may include such items as racing blocks for competitive swimming, racing lane lines, movable bleachers, canoes or rowboats for instruction in lifesaving, and tables or other poolside furniture. The only critical point as far as visually impaired persons are concerned is making sure that each individual using the facility is made aware of things kept in permanent places and those only there temporarily. Permanent fixtures are important reference points to blind individuals for maintaining orientation to the environment. Improperly placed equipment or pieces of apparatus that have been changed or replaced unknown to a blind swimmer may be the cause of much confusion and a possible accident.

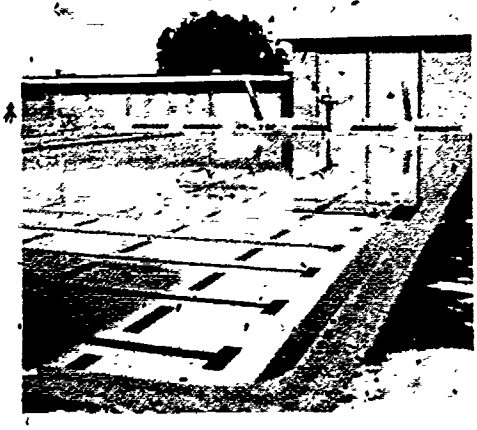
Other special items that are becoming popular in pools which are used for both instruction and competition include underwater speakers and observation windows. Speakers not only make it possible for an instructor to speak to students while they are below the surface but also allow for music underwater during synchronized swimming routines. An underwater window has made possible underwater photography and observation by coaches. Since a blind person is without two sense (sight and hearing) when submerged in most swimming pools, instructional opportunities can be greatly improved through use of an underwater speaker system and observation made by instructors through an underwater window.

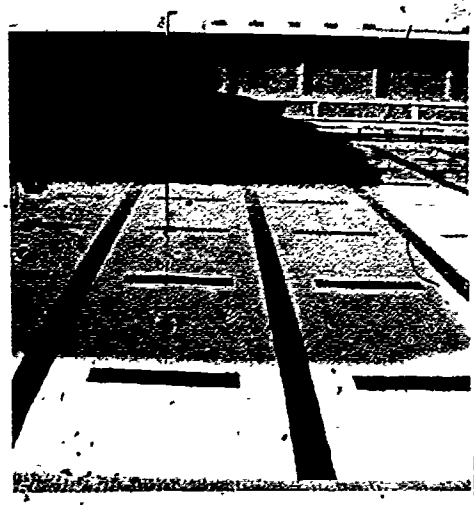
Special Pools for Special Purposes

Since pools are usually designed for diversified populations and for a wide variety of aquatic events, it is becoming more and more evident that there is no one-purpose pool. Even a pool for blind swimmers would not be feasible since blindness does not limit itself to persons of one age, size, ability, or aquatic interest. Although many swimming pools do serve more than one purpose, some facilities are designed with one particular emphasis in mind. The following are general descriptions of four types of special facilities.

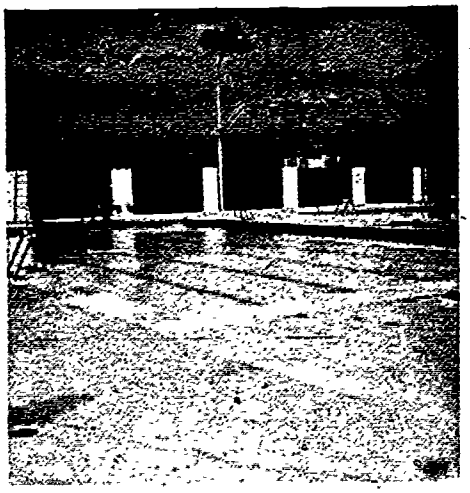
The Instructional Pool. Two types of instructional pools are described in the following discussion. Both of these facilities have been used for the instruction of blind and otherwise impaired or disabled individuals as

STANDARD SWIMMING FACILITIES





LARGE OUTDOOR POOL...The pool shown above, specifically designed for competition, is part of a junior college physical education facility. Long-course events are conducted over the long dimension of the pool (50 meters); the width (25 yards) is used for standard short-course swimming events. Depth range is from 4 1/2 feet at the end where the short-course starting blocks are positioned, to 14 feet under the diving boards.



MULTIPLE POOL COMPLEX...This state college facility provides for instruction, recreational swimming, water polo and other competitive events including short-course swimming. The deep pool ranges from 6 feet to 13 feet, and the instructional pool ranges from 3 1/2 feet to 5 feet. Both pools are standard outdoor pools, each 75 feet by 42 1/2 feet.

well as for able-bodied persons. The first is a small indoor heated pool at a YMCA which for several years has featured programs for blind as well as for groups involving other impaired and disabled persons.

The pool is approximately thirty feet long and twenty-five feet wide with a constant depth of three-and-one-half feet. It is in a separate room which can be closed off from a larger recreational pool thus minimizing the noise factor and making the area more suitable for successful instruction. The pool has proved to be of tremendous value to many blind students who had no previous experience in the water. Because of the constant depth of three-and-one-half feet, beginners rapidly become accustomed to the water as there is no fear of suddenly stepping off into a deep section. The relatively small dimensions of the pool make loss of direction and orientation problems insignificant. Only essential pieces of pool equipment are available in the room. Spectators may observe students in the class through a large window on one side of the room. In this way, distractions to the class are almost completely eliminated and in the absence of unnecessary pool furniture on the pool deck, there is little or no chance of students tripping or falling either on the deck or in the pool.

One of the more modern instructional pools is featured as part of a swimming facility at California State University at Hayward. This facility has been used for groups or individuals with various impairments or disabilities including blind swimmers. This is an outdoor heated pool which measures seventy-five feet in length by forty-two feet in width with a depth range of three-and-one-half to five feet. Unlike most similar pools which become progressively deeper as one travels along the seventy-five foot length, this pool becomes progressively deeper across its shorter dimension. This not only allows for more shallow area for instructional purposes but permits one to swim for twenty-five yards in a straight line while the depth of the water remains constant.

Pools for Competition. With growing interest in competitive swimming, more and more pools are being constructed as part of swim centers or on college campuses with competition as a major purpose. Usual design includes a pool that is fifty meters in length for long-course competition and twenty-five yards in width for competition over the short course. Depth range usually runs from approximately four-and-one-half feet at the shallow end to thirteen or fourteen feet at the deep end. While racing lanes must be moved out of the way in smaller pools to make way for competitive diving, a pool of this design allows competitive diving to occur at the deep end while racing lanes for short-course competition may be kept in place at the shallow end.

Since the swimming area is so large and because the minimum depth of the pool is still about four-and-one-half feet, it can be seen that while these pools are excellent for competitive purposes, they are not practical for typical recreational swim program involving the general public. Small children and poor swimmers have difficulty even at the shallow end of these pools. In cases where a pool of this type is open for public recreational swimming, as may be the case on a college campus, a blind student wishing to use the facility has no serious problems as long as he/she is capable of swimming in deep water. As mentioned earlier, however, the tremendous

increase in swimming area creates some problems in orientation. A blind swimmer may at times experience a sensation similar to swimming in the middle of a lake after taking several strokes and still not contacting one of the pool walls. This loss of orientation often occurs after one has returned to the surface from completing a deep dive or after completing a dive which involved somersaulting or twisting. This particular problem should not be a reason for discouraging a blind swimmer with ability from using such a pool if one has an opportunity to do so. To the person who enjoys long stretches of swimming without stopping or turning, a larger than normal swimming pool can provide tremendous enjoyment as well as being a true builder of self-confidence in the water.

The Diving Pool. While diving of some kind usually occurs just about every place people gather to swim, pools designed specifically for diving and no other purpose are becoming more and more popular at recreation facilities which specialize in aquatic activities. These pools or diving wells are usually not quite as long as the standard pool (twenty-five yards). However, depths may be as much as twelve-and-one-half feet or in some cases fifteen to seventeen feet; especially if there are diving towers as well as springboards. Unless a pool has been specifically reserved for special events such as synchronized swimming or scuba diving classes, these pools are usually used strictly for diving. Such a pool presents no problems to a blind student who is trained in this activity. It is actually safer than the usual standard pool which includes both swimmers and divers with only a rope to separate different areas. Since a blind person with proper safety habits always has a spotter or observer to let him/her know when it is clear to leave the diving board, and since there would be no casual swimmers moving in and out of the diving area, a diving pool is highly practical for visually impaired persons trained in skills for which the facility was designed.

The Multiple Pool Complex. While many swimming pools today are being used for more than one purpose, it has already been indicated that range of activities which occur in swimming pools is too wide for one pool to serve everyone properly. This problem has been successfully handled with development of the multiple pool complex. In many cases, facilities with two pools have been operated successfully and served a great many purposes. Some of modern swim centers which are elaborate in design often feature three or more pools. In any case, the usual solution to the problem is to group together activities which can be done safely and efficiently and keep them in one pool. Activities which require a completely different pool design are grouped together in another pool. Obviously, the more pools that are available, the finer the division of activities and the less crowded each pool.

An example of a multiple pool complex which serves many purposes is the swimming facility at California State University at Hayward. There are two outdoor heated pools, each standard in size (twenty-five yards by forty-two feet). The instructional pool mentioned earlier ranges in depth from three-and-one-half to five feet. The deep pool is six feet in depth for approximately one-half of its length with a slope dropping down to thirteen feet beneath the three diving boards. Both pools are used for instruction as part of the college program. The deep pool has been equipped with underwater speakers for instruction in synchronized swimming or skin and scuba

diving as well as for music during recreational swim periods. An underwater observation window makes coaching and underwater photography also possible. Included as part of the design of this pool are standard dimensions and official equipment for short-course swimming competition and competitive springboard diving as well as necessary equipment for water polo. During recreational swim periods, the wide range of water depth covered by both pools makes swimming, diving, and shallow water activities possible for large numbers of people with a wide range of abilities, and with no significant interference of one activity with another. Since these pools have been used by several blind students for instruction in special adapted classes as well as in regular classes, and for recreational swimming, it is clearly indicated that such a facility is highly practical for blind or partially sighted swimmers.

Summary.

In this chapter it has been illustrated that there really are no features of standard swimming pool equipment which make any facility impractical for a blind swimmer. If in designing a pool emphasis is placed on safety-first for all who use that facility, blind or partially sighted persons should not have any significant disadvantages. For those features of swimming pool design which do present unique problems to a visually impaired person, solution is most always found by modifying slightly or adapting the approach to the situation or possibly by inventing a completely new technique. In general, the following are some features which would be good at any swimming pool and especially helpful if some of those who use the facility are blind or partially sighted persons:

- A change in the texture of the pool deck surface or rough tile a foot or two away from the edge of the pool gives one sufficient warning that the pool's edge is nearby.

- A minimum of sharp edges or metal objects around a pool such as metal ladders below the surface with protruding handrails and steps do not completely eliminate the problem of an occasional bump or bruise, but it reduces the number of cuts and bruises.

- Course or textured floor surfaces minimize danger of slipping on wet feet in the shower or locker room and on the pool deck.

- In pools where swimming and diving occur simultaneously, there should be a well defined diving area with adequate supervision of those who use the diving boards.

With knowledge that any pool that is truly safe is a practical pool for visually impaired persons, we are ready for the next step--accepting the fact that certain problems do exist which are unique to blind and partially sighted participants in most every new activity and that making adaptations is necessary. With this approach in mind, we can face new situations which are a part of the many aquatic activities to be presented in the following pages.

WHO TEACHES AQUATICS AND HOW

Those who bring sunshine into the lives
of others cannot keep it from themselves.
Job 32.18

Because of increasing opportunities for blind persons to participate in aquatics, need for well qualified instructors to teach these activities is also increasing. An instructor who works with a blind student is basically no different from any other instructor. However, depending upon class environment and activity being taught, certain adaptations or modifications of teaching techniques are necessary.

Just as it has been shown to be practical and possible for blind persons to use standard swimming facilities by simply revising or inventing a new technique when a problem arises, the same is true in teaching if blind or partially sighted persons are to master new skills. Types of modifications which are necessary depend upon the activity being taught. Although there are a great many aquatic skills which require instruction and though many of these are specialized, in general instuctors who teach these activities may be grouped into three categories:

- School or college instructors.
- Volunteer instructors.
- Coaches or individuals who are highly skilled in a particular area.

The School or College Instructor

Because of the nature of their work, school or college instructors are already prepared with knowledge of skills to be taught. However, unless one has been particularly assigned to a specialized program, most of students in classes are usually able-bodied. A blind student who enrolls in such a class should do so with the same attitude expected in any academic class--the individual works toward accomplishing the same skills and to participate fully with other members of the class. While this may seem extremely difficult at first in view of the many visual demonstrations which generally occur in a typical physical activities class, instructor and student can usually work out solutions to such problems with a minimum of effort. Many of the necessary requirements, though overlooked in some cases, are usually good standard teaching practices whether a class contains impaired and disabled students or not.

Since there may be little time for individual instruction other than that which can be offered as an instructor circulates through a class, it is essential that the instructor use clear, concise, verbal descriptions in oral presentations. Since learning skills of this nature often involve physical demonstration as well as verbal descriptions, an instructor might do well to use the blind student occasionally for demonstrating a movement

pattern or allow him/her to feel movements of another student who is demonstrating (coaction). Another method often used and quite helpful in minimizing some problems of a blind student is the buddy system in which each student choses a partner to work with in learning a skill. In this way, if a blind student does not understand material that is presented orally by the instructor, the problem can be worked out with the partner without any interruption of class activity.

The Volunteer Instructor

This category of instructors includes those teaching in situations such as Learn to Swim programs offered by the American National Red Cross. In this class arrangement, the number of students with each instructor is often much higher than in the previously mentioned situation. When working with impaired and disabled students, it is often the practice at certain stages to have students and staff on a one-to-one basis. Volunteers are important in this type of class structure.

Those who teach as volunteers should be qualified water safety instructors or certified in lifesaving. Assuming that they are well prepared in subject matter, they have the same responsibility as a school or college instructor--good communication with students. Since classes are much smaller, and since instructors work more closely with blind students, communication problems are less noticeable; however, there is still a definite need for good clear verbal communication.

Whereas a blind student who enrolls in a class with sighted classmates more than likely enters with some experience in aquatics, volunteer instructors may be faced at times with students who have never before been in the water. While this may present some problems, even if students are sighted, lack of previous water experience along with lack of eyesight may make progress of blind students a little slower than normal during beginning phases of instruction. A volunteer instructor should realize this problem and face each new situation patiently and confidently with a student and not develop an overprotective attitude toward the student.

The Coach or Skilled Athlete

While many forms of aquatic recreation are included in most general classes, some specialized activities such as diving are only introduced in their elementary forms. Other activities, such as water skiing, are not offered in the general class and therefore must be learned somewhere else. In these cases, as well as numerous others, a third type of instructor may be called upon. This is the coach or qualified athlete. In any case, the teaching arrangement is quite similar to that involving volunteer instructors in that they work with one or a very few blind or partially sighted students at any one particular time. Ability to communicate well and to understand each student as an individual is essential. However, in the case of such specialized instruction, one other factor must be considered. While an instructor may be extremely qualified in his/her special activity, there is no guarantee that a skillful diver or water skier is adequately trained in techniques of lifesaving and water safety.

If such is the case, the activity should not be conducted until provisions for safety can be made. In the case of boating activities, it is required by law that one approved life preserver be on board for each person in the boat. It is also required by law in most areas that one must wear a life preserver while water skiing.

The Qualities of a Good Instructor

Regardless of the instructor or type of activity being taught, one of the most necessary qualities of a good teacher is ability to communicate well with a student. In addition to proper choice of words and ability to demonstrate effectively, an instructor must be able to hold the interest of students. Without visual cues, it is quite easy for the attention of a student to drift away from time to time. Because of the small number of students in each class in most cases, as well as the short distance between an instructor and any particular student, this problem is not usually too noticeable unless material is not presented clearly.

A good technique which can be used to test one's ability to teach blind or partially sighted students is to tape record a class session or observe another person who is teaching visually impaired persons. Pay special attention to the number of times that such phrases as Do it this way or Move your arms like this are used. Try to imagine how meaningful or how clear these instructions would be if you were unable to see. Each time a movement is physically demonstrated to a blind student along with instructions to Move this way or some similar command usually poses no problem when a movement is clearly understood by the student. However, if commands are given and movements demonstrated by the instructor visually, the presentation has little or no meaning to a blind student. This situation more than likely comes up in a class where blind and sighted students are combined as opposed to situations where an instructor works individually with one or a limited number of impaired or disabled students.

A second important quality of the good instructor is having a sincere interest in the progress of each student. Because of traditional attitudes toward blindness, many individuals are not certain as to how they should act toward blind persons and as a result, feel uneasy around one who is visually impaired. This is especially true if the student is slow to learn and lacking in self-confidence. If instructors are also working with students who have a great deal of self-confidence and learn somewhat faster, they may have a tendency to lose interest in slower students and instead turn toward students they look upon more favorably. In reality slow learners at this stage of instruction need more encouragement.

Another closely related quality is problem solving ability. This can be summed up in one word--imagination. Types of problems which come up in learning situations are as varied as the activities themselves. No one instructor can be expected to have solutions to all of these problems. When a difficulty does arise, an instructor should analyze the situation and imagine facing the problem from the student's point-of-view. An instructor who tells a beginning student that he/she simply doesn't know how to handle a particular problem may in one short moment destroy all the confidence an

impaired or disabled student had developed in that instructor. To a more advanced student who is more capable of handling frustrating problems such a statement might still be discouraging at first; however, this student may be able to supply the imagination the instructor lacks and most likely prevent such a situation from reoccurring.

One more essential quality of a mature instructor is ability to use wise judgement in making decisions. Because of traditional beliefs concerning blind persons, many individuals may develop overprotective attitudes and not allow a blind or visually impaired individual to attempt anything which may seem unusually difficult or a little dangerous at first. While safety can NEVER be over emphasized, an activity felt to be truly dangerous is probably impractical from the outset. However, many activities which may seem frightening or dangerous at first usually only require a slight revision of a technique used in learning the skill.

An example of an apparent danger being immediately eliminated by adding a modified procedure is exemplified in a blind person diving into a pool. Possibility of diving in on top of another swimmer is very real. However, this danger can be eliminated by always getting a verbal all-clear signal from a qualified swimmer or lifeguard before each dive. Poor judgement on the part of an instructor may be equally as harmful to a blind participant. An inexperienced instructor who is so influenced by the success of a blind person in a particular activity may not impose enough restrictions. It is at such times when accidents could occur.

The deciding factor is the individual make-up and programs of each student. Some students take several weeks to achieve what others accomplish in one day. Since there is a wide range of abilities among visually impaired persons to perceive spatial relationships, individual differences among them show up noticeably in activities which require such perception. A good instructor is able to observe performance of each student and make judgements according to how well a student has performed each preceding step before suggesting the next step in learning a skill. In making such judgements, an instructor should also consider what a student says and thinks about his/her own progress. Encouragement toward new goals should be given just as it is for all students. However, care should be taken not to push one into something for which he/she is not yet confident or prepared to attempt. Although it is unfortunate, a frightening or unsuccessful experience in the water remains more vivid in one's memory than a successful one.

Class Arrangement

Some class arrangements in which instructors may find themselves have already been mentioned in this chapter. While there are many different possibilities in specialized activities, of importance in this discussion is the small specialized class for blind students as compared to enrolling them in regular or standard classes. Although it is quite commonly felt that the only practical way to teach blind students activities such as swimming is to enroll them in specialized classes, it has recently been shown that there are advantages to these students enrolling in regular classes.

The Specialized Class for Blind Students. Although a class of this type is usually small in number, the number of students in the class is not as important as the number of students assigned to each instructor. In most programs of this type, the desired ratio is one student to each instructor to insure maximum safety. However, whether there is one or possibly three students in a group, the important factor is the amount of individual attention each student is able to receive. This is especially significant to a beginner in swimming. To more advanced students, especially if each is receiving individual instruction, progress from one step to another in a series of skills is much faster as other students with widely varying capabilities are not there to slow down instruction.

Another advantage of this system for beginning swimmers is that, because of the close relationship with an instructor, each feels more secure until sufficient confidence has been gained in the water. A specialized class is also advantageous to a student who has difficulty in perceiving spatial relationships. Instruction can be altered to fit the pace of each student. If additional time has to be taken to help a slow learner over a particular problem, there need be no interference with more rapid progress of other students. While this type of class arrangement has been used successfully for many years and while many blind individuals have benefited greatly from it, there are a few disadvantages.

Since the environment is more protective than that of a typical swimming class, unless care is taken, many students may feel insecure if they swim under any other conditions. Instructors of such a program can avoid this problem by gradually preparing the student for normal activity with sighted persons. As skill and confidence are developed, an instructor may occasionally invite a blind student to participate in the regular recreational swim program. Another disadvantage of limiting water activity to the specialized class environment is that it may prolong one's adjustment period to the impairment or disability. A major factor in an impaired or disabled person's adjustment to a normal way of life is to accept oneself and realize one's limitations. The sooner an individual can adjust to normal activity, the sooner able-bodied persons will accept them as a normal, confident peer.

The Blind Student in a Normal Class. With many opportunities available to learn aquatic activities in schools or colleges, blind or partially sighted students might find one or several of these courses interesting and wish to sign up for them. Those who have confidence and some experience should have no significant problems in most classes. However, with larger number of students in a class, the blind student has to adapt to the class and the pace at which material is presented rather than having the pace of the class adapt to him/her as in the specialized program. Any anticipated problems should be discussed between student and instructor before the class begins. At such time, the instructor should advise whether the class is practical or whether the blind student should receive some specialized instruction beforehand to gain self-confidence in the water.

While it is obvious that a class such as those offered in schools and colleges are more challenging to a blind student and demand greater concentration and effort, participation in a regular class has been shown to have several definite advantages. Psychological problems related to

adjustment to blindness in such an activity are dealt with early and are usually overcome as skill and confidence are developed. Although a blind student in a regular class has to put forth more effort than necessary in a specialized class, experience of learning and working with others often proves to be satisfying and does much to improve one's self-image and confidence in other activities as well.

Summary

In this chapter, we have been mainly concerned with types of instructors who now teach and who will teach aquatic activities to visually impaired persons and methods they use in various teaching environments. Specific problems and adaptations will be discussed as they occur in special situations in activities to follow. Both specialized and standard classes have definite advantages and disadvantages which should be considered in detail by blind or partially sighted students and the director or instructor before deciding upon which approach to take. In general, students with previous experience and confidence in an activity may feel more comfortable in a standard class while those with no previous experience in an activity may benefit from some instruction in a specialized course for visually impaired persons. While size, type of class (regular or specialized), and activity being taught may vary, all instructors have to face each new situation with an open mind that is not handicapped by traditional attitudes concerning visual impairments. Their goal is not simply to teach aquatic skills but to gain and keep confidence of each student: Understanding between student and instructor is a necessity. Teaching is not based on presentation of skills alone; the other essential factor is communication. Realizing that one of the means of communication is nonexistant when one is without vision, imagination and creative ability are the two most useful tools to aid an instructor who teaches aquatics to blind and partially sighted persons.

SWIMMING: THE FOUNDATION FOR WATER CONFIDENCE AND SAFETY

> If you have built castles in the air, your work need not be lost; that is where they should be. Now put the foundations under them.
>
> Henry David Thoreau

Values of adequate swimming ability to anyone seeking recreational activities in or around water are obvious. However, not all aquatic activities require an individual to be in direct contact with water; boating and fishing are just two of many examples. Since ability to swim is not required in these activities, its importance is often overlooked until an emergency occurs. A nonswimmer who falls from a fishing pier or while not wearing a life preserver is thrown from a small boat can do little more than wait for assistance. The individual's fear of being in trouble makes the job of a rescuer more difficult. On the other hand a person with adequate swimming ability is safer in water, can handle unexpected situations, and is not likely to let panic interfere with good judgement.

From a safety vantage, knowing how to swim is extremely important to a blind person who enjoys any type of water recreational activity. Blindness is often a cause of fear in new situations. However, there is no reason to believe that water is inherently more dangerous for blind individuals than for anyone else. For example, a sighted person with no training and no confidence in the water has more difficulty in an emergency than one unable to see who is water safe.

Thus far, the importance of knowing how to swim has emphasized safety considerations. The fact that swimming can make other forms of aquatic activity more safe and practical is significant. Recreational swimming can be strenuous, relaxing, or creative; it can be described in other ways depending upon the individual participant. The fact that swimming has been a valuable activity not only for visually impaired persons but for most other impaired and disabled individuals is evident from the many specialized programs in which it is included. Since movements in the water are somewhat slower than on land, and since one can move about with more ease and freedom, effects of a condition such as blindness are less of a problem and less noticeable in water. Often blind or visually impaired swimmers with skill and confidence in water are not looked upon as handicapped. However, conditions such as blindness are considered whenever necessary, such as getting a verbal all-clear from an observer before diving.

Adaptations are necessary and should not be looked down upon by anyone. Adapted devices and modified methods to minimize or eliminate possible dangerous situations are used in water by many different individuals. Because adaptations often enable blind persons to participate in regular aquatic programs with complete safety and confidence, visually impaired individuals are usually more readily accepted by others in these activites and blindness is not a cause of undue concern.

The time to handle special problems related to blindness is during instructional periods. For this reason, emphasis in following discussions

is not specifically on mechanics of each swimming stroke but instead on unique problems faced by blind swimmers in learning these skills. Standard swimming skills that must be performed in a specified manner by blind and sighted persons alike are discussed.

Teaching Swimming to Blind Individuals

Learning to swim is basically the same for blind as for sighted individuals. In either case it involves becoming familiar with a completely new environment, gaining confidence in one's ability to stay afloat, and building upon this confidence by learning any of the various swimming strokes. Possibilities for advancement are as varied as one's special interests and individual goals. At all stages in the learning process, attitudes of blind or visually impaired students toward their own abilities are directly or indirectly related to functional vision. If an individual fails several times while attempting a particular skill, instructor and/or student often assume that the visual condition caused the problem so that attention is immediately directed to another skill. In reality, the solution may only require a little more practice by the student or more accurate instruction by the teacher. Actually eyesight does not play a significant role in early stages of swimming instruction. A sighted swimmer in water can seldom accurately see what the arms and legs are doing.

Adjusting to a New Environment. A student with no previous experience in water is about to enter a whole new environment. Before instruction can be meaningful to blind students, they must be familiar with the swimming area as well as feel comfortable in water. Learning about the swimming area is not any more difficult for these students than learning about any other new area. However, an instructor describing an area to one who is totally blind may find it a new and challenging experience. The student must know how to move safely from locker room to pool. It is essential that the student be taught to form some type of mental image of the pool and its surroundings. The instructor can be of assistance in this process by walking around the pool with the student and explaining such things as pool dimensions and depth along with locations of stairs, wall ladders, lifeguard stands, and diving boards. Both permanent and temporary pieces of equipment need to be pointed out. Permanent fixtures are used by blind swimmers as landmarks and therefore should be given special attention.

The more meaningful information a student can gather about the swimming pool environment, the less likely the chance for confusion, loss of direction, or accident. If any pool equipment is changed or replaced from one session to another, changes should immediately be pointed out to each blind student familiar with the old landmarks. After a thorough orientation to the pool and surrounding areas, the student is ready to enter the water.

Most swimmers, regardless of present ability, are able to recall their first experiences in water as somewhat frightening. Water rising around the body, changes in body temperature, and water movement are unlike anything experienced on land. Adding to this uncertainty is the way water makes the body buoyant. Body movements are much slower and more difficult in water at this time; footing becomes more uncertain as one moves into water that approaches chest or shoulder depth. It is not unusual for a

blind student to feel that these fears are due to visual impairments. The instructor needs to be encouraging and reassure the student that these new and unusual sensations are normal and shared by almost everyone their first times in water. The instructor must not only be confident but be able to win the confidence of the student as soon as possible. The sooner confidence is shared by both student and instructor, the more rapid the progress.

The final step in adjusting to water is in gaining confidence to go below the surface. This is often difficult for beginners. However, this presents no special problems for one without sight. Since most beginners fear opening their eyes underwater and since water around the ears prevents or greatly distorts hearing, most beginners feel a little insecure at first. To minimize fears, one may hold onto the gutter along the edge of the pool and gradually lower the head below the surface. A second step may be to walk into waist-deep water with the instructor and then duck below the surface while still holding the instructor's hand. The third step could be to duck below the surface without any assistance. Finally, a student may plunge forward or sit down to drop beneath the surface and then regain footing on the bottom of the pool to stand up. As with previous steps, this may be done with the instructor who assists the student to his/her feet until confidence has been gained.

Building Confidence with Swimming Skills. After students become well oriented to the pool and its surroundings and begin to feel at ease in water, they are ready to learn skills to strengthen confidence and enable them to enjoy normal participation in swimming as well as other aquatic activities. Although methods of presenting these skills to blind or visually impaired students may be slightly revised, these are standard skills presented to all swimmers. In general, materials presented to blind students are based on courses offered by the American National Red Cross--beginners, advanced beginners, intermediates, and swimmers. Courses for advanced swimmers in lifesaving, and water safety are also offered.

Whatever specific content of a particular swimming program, emphasis is on giving a student confidence by teaching several ways to float. Then add arm and leg movements and a proper breathing rhythm to build a swimming stroke gradually. Different types of arm and leg movements and a variety of breathing patterns are then introduced to develop other swimming strokes.

By progressing gradually from skills in which a student has confidence to those which are new but related, a full range of swimming strokes can be learned with minimum of difficulty. In presenting swimming skills to blind or visually impaired students, certain adaptations to regular teaching procedures are necessary, especially if a student is totally blind. Clear, concise verbal descriptions which do not depend upon visual observation are most necessary.

Commonly used helpful technique requires tactual demonstration of skills. This is done by:

- Demonstrating a skill and allowing the blind student to feel movements of involved body parts.

- Having the instructor move the arms or legs of a blind student through the proper motion until the feel of a movement has been acquired.

- Combining both methods is effective also.

In learning a new skill, many beginners soon realize that simply imitating an instructor does not always produce desired results. This can be the source of frustration and disappointment for visually impaired students if not handled properly by instructor. Since all swimming strokes consist of rhythmic movements, the important factor is not that a particular set of motions is reproduced. Proper emphasis must be given each part of a stroke at the appropriate time.

Comments of an instructor should be meaningful to a student and related to familiar situations. An example is when one who is apparently doing everything properly is unable to keep the head above water while treading because upward and downward movements are equal. This can be explained clearly and demonstrated effectively in shallow water. Move the hands first in an upward direction and then downward so that force exerted down against the water causes the individual to rise while upward force causes the person to fall. If these two forces are equal, the body does not rise any higher in the water than with no motion at all.

To keep the head above water, the body must rise higher than in its normal floating position. To accomplish this, forces exerted downward against the water must be greater than upward forces. In other words, emphasis is given to <u>downward</u> movements of hands and feet while upward movements are thought of as a recovery prior to the next stroke.

Another cause for sinking when learning to tread water involves hooking the toes upward at the beginning of the up-stroke to prepare for the next downward push against the water. This may seem like a fine point which is difficult for a beginner to understand. Yet such seemingly technical details make the difference between going through the motions with little success and performing movements with less effort and achieving full success.

This problem can be solved by comparing the experience with one which is similar and familiar. Almost everyone at some time or other has stepped into deep soggy mud or has at least touched mud. One does not climb out of mud by first curling the toes upward and then lifting the foot. The normal reaction is to point the toes downward and slide the foot out--heel first. That this method provides less pressure on the foot is easily demonstrated in shallow water. First have the student raise the foot with toes bent upward and then with toes pointed downward. Water slides down the foot in the second situation so that there is less resistance against the foot during this part of the movement. Consequently, the body is not forced beneath the surface.

Another apparently difficult situation which can be simplified with slight revision involves teaching a complex skill such as a complete swimming stroke. While swimming strokes can be simulated on the deck or near the edge of a pool, beginners who attempt to concentrate on all phases of a

stroke may have difficulty getting the head above water at the proper time for a breath. Remembering that swimming is a completely rhythmic activity, an instructor can include both auditory and tactual cues. For example, it often appears at first that arms and legs move at the same time but in opposite directions in the breast stroke. Actually arms start to pull slightly before legs begin to recover for the kick.

This situation, which seems highly complicated, can be simplified by having the instructor demonstrate movements for blind students in the normal manner. At the same time the instructor demonstrates, he/she counts in rhythm with the movements. Although this stroke can be completed in three rhythmic counts, the beginning of leg recovery and inhaling do not occur on regular beats. In this case, and is inserted between the numbers to indicate where off-beat action occurs. Auditory rhythm for this stroke might be one-and-two-and-three, one-and-two-and-three. Off-beat action occurs between counts one and two. However, the second and is included to keep the rhythm even. During the second and beginning the glide.

As an instructor demonstrates the stroke, numbers are counted several times in rhythm until the student learns the timing. Then the instructor substitutes the words pull-breathe-kick---glide, pull-breathe-kick--glide for the numbers one-and-two-and-three. Possibly the most critical and technical point is teaching the student to wait until after the arms have begun the pull before starting recovery of the legs for the kick.

The proper rhythm can also be established by having the student demonstrate the stroke while holding the gutter at the side of the pool. The student performs the skill as the instructor counts the beat. If a student has a tendency to begin the leg recovery too soon, the instructor may correct this by holding the feet in the glide position until he/she says and between numbers one and two.

Techniques described above are not limited to the breast stroke nor are they only practical for blind or partially sighted students. Counting rhythms of various swimming strokes has long been used in regular swimming classes. The only significant difference when used to teach blind students is that skills are also tactually demonstrated. In this way a blind student feels movements at the same time rhythmic counts are given. Occasionally a student memorizes proper rhythm and appropriate movements. However, because of inaccurate communication between student and instructor, parts of the stroke, though performed accurately, are not timed appropriately. To coordinate all parts of a complete swimming stroke is often difficult for any student. This problem is normally handled through observation of several repetitions of a complete stroke. This reemphasizes need for clear, concise verbal descriptions and accurate demonstrations to blind students. If too many movements are going on at any one time for a student to feel them all simultaneously, demonstrate the full cycle of a stroke several times while the student examines each movement in terms of its relationship to other movements and to the rhythmic count.

Special Problems for Blind Swimmers

As soon as students gain confidence in one or several swimming strokes and begin to swim distances greater than those required to demonstrate skills, many begin to discover certain problems faced by all blind swimmers regardless of their degree of skill in water. Maintaining direction and orientation in the water are noticeable problems. Another to be considered is how to avoid collisions with walls and other swimmers. Students soon discover problems peculiar to each style of swimming. As an aid to both student and instructor these problems are discussed in the following paragraphs.

Water Orientation. Almost every swimmer without a point of reference has difficulty maintaining a straight line while swimming. This is especially true of beginners who do not open their eyes while moving through water. For blind swimmers, this problem is magnified somewhat since they usually have no way to know when they are going off course unless contact is made with a wall of the pool or they are able to hear verbal commands from an observer. An individual unable to hear commands and who does not make contact with a wall may complete as much as a full circle and be completely unaware of turning. This results in complete loss of orientation. While this is not a serious problem for a capable swimmer, there is need for concern if a poor swimmer drifted into deep water and was unaware of it. This is one reason that complete familiarity with the pool and its surroundings was emphasized earlier in this chapter.

Loss of direction and orientation may occur at any time during swimming. However, the situation is not as difficult to handle as it may at first seem. Sound provides key reference points around a pool for a blind person. Therefore, special attention should be given to familiar sounds produced by equipment and devices in permanent locations around the pool. For example, rattling of a diving board is one sound which cannot be easily mistaken for anything else. A music speaker at a particular location on the pool deck provides sound that can be used for orientation purposes. If a pool has both shallow and deep ends, one easily notices noises made by small children at the shallow end. Any number of additional sound references can be used depending upon the pool and surrounding facilities.

Collisions with Walls and Other Swimmers. Colliding with another swimmer or pool wall is not unique to blind or partially sighted swimmers. Although collisions can cause injury, they are seldom serious since movements in water are slower than on land. With a little extra concentration on the part of a blind swimmer, collisions should occur very seldom, and those which do occur should be little more than just brushing physical contact.

To reduce possibilities of violent collisions, swimmers should avoid wild thrashing motions while navigating through crowded areas of a pool. They should remember to slow down whenever they feel they are approaching a wall. Strokes should be slow and cautious when one becomes disoriented as a wall may be much closer than the swimmer estimates. When swimming underwater it is often possible to detect an approaching swimmer by disturbances in the water. Although sounds are not as directional underwater as on land, noise levels beneath the surface increase as another swimmer approaches.

Problems Peculiar to Styles of Swimming. Many problems discussed thus far may be eliminated, minimized, or greatly magnified depending upon the particular stroke. Based on opinions and experiences of many blind students in various swimming programs, it is generally agreed that maintaining one's direction is easier while swimming on the stomach than on the back. When swimming on the back the ears are almost constantly below the surface of the water or water continuously sloshes in and out of the ears to make hearing verbal commands extremely difficult. Furthermore, when an instructor shouts to a student, "Go left," this usually means go left of the direction in which you are traveling. To a swimmer on his/her back in the water, left means in the direction of the left shoulder; this position is to the instructor's right. Obviously, this can be a source of confusion.

Since sound is vital for maintaining orientation, strokes performed in a face-down position are most useful if the ears can be cleared long enough to recognize sounds. For example, one ear is brought above the surface as the head is rolled to the side for a breath in the crawl. However, in many cases water is cupped in the ear and a swimmer may have the sensation of still being submerged. In the breast stroke the head is lifted straight forward and upward so that water drains from the ears during the time that breath is inhaled. Although one ear is kept out of water constantly in the side stroke, an occasional washing of water over a swimmer's head can cause this ear to fill and remain filled unless the head is tilted one way or the other. Although it is possible to hear verbal commands, the fact that only one ear is exposed makes recognizing direction of a sound extremely difficult, if not impossible. This is not to imply, however, that the breast stroke is the only practical stroke to use. In any stroke the head may be raised and kept above the surface for a cycle or two to check orientation. Swimmers capable of handling themselves anywhere in a pool may simply not worry about hearing and choose to use other strokes because they are relaxing or more satisfying.

Although disorientation is possible, no rule says that it must occur every time one is not aware of sound references. To reduce possibility of collisions, some swimming strokes are more practical than others. For example, when swimming toward a wall, any stroke in which a swimmer's hand extends beyond the head is practical. Although there is no definite glide period in the crawl, a blind swimmer might extend each hand slightly longer than usual so that there is no time when the head is the foremost part of the body.

In breast and side strokes, the period of time the head leads the body is relatively short. However, there is a short moment when the head could strike the wall before the hands. This can be remedied by slowing down the stroke when approaching a wall or when in doubt as to location and closeness of a wall.

Since the butterfly is an extremely powerful stroke in which the head leads the rest of the body for a relatively long period of time, this stroke should be used with extreme caution, especially when approaching a wall. Even at relatively slow speeds, it is possible to strike the top of the head, nose, or chin on the scum gutter before the hands come down into the water.

Both regular and elementary back strokes may be extremely relaxing. However, these strokes, as well as the inverted breast stroke, make it possible to strike the head on the edge of the pool. Unfortunately, when the head is the leading part of the body; much of the power of these strokes is being delivered. These strokes should not be discouraged but used with caution when the wall of a pool or other swimmers are nearby.

Putting New Skills to Use

Certain goals are common to all well designed programs of swimming instruction. One of the most common and important is to teach each individual to be safe and comfortable in water. Another objective is to teach one to accomplish and appreciate as wide a variety of swimming strokes as possible. One of the most valuable assets of any swim program is accomplishment of a real feeling of confidence and safety in water. This ability is often referred to as watermanship. Regardless of how precise and accurately swimming strokes are performed, one who combines confidence in and respect for rather than fear of water will be safe and possess Watermanship.

At this point an individual can most appreciate and enjoy swimming. To demonstrate a particular skill for an instructor is only the first step. To use one's skills naturally and with complete confidence in a regular recreational swimming program is the true indicator that an individual has reached the most important goal in this stage of aquatic development.

Summary

No special emphasis has been given special objectives for blind or partially sighted persons as compared to objectives for sighted individuals. This has been intentional. Since swimming is an activity for ALL people, instructional programs are designed to give every student equality of opportunity. If a special objective is related to blind or partially sighted persons, it is the basic objective of this chapter--to discuss common problems faced by blind and partially sighted persons in swimming. Various adaptations have been presented so that both student and instructor can more fully understand what is involved in new situations and thus be able to work out practical solutions. Individual swimming skills are basically standard for everyone. Special methods of presenting these skills are in many cases simply another means to the same end. Though swimming will be completely new and challenging experience for some, results are personally rewarding and satisfying in most cases. Numerous blind and partially sighted persons who have gone through such programs and advanced further in aquatics have reported that learning to swim and feel at ease in water has been a foundation for building confidence, not only in water, but in many daily activities as well.

LEARNING TO DIVE

Do not let what you cannot do
interfere with what you can do.
John Wooden

The question of whether or not diving is a practical activity for blind persons has probably never before been given serious consideration. Although elementary forms of diving are often included in swimming courses, opportunities for blind and partially sighted individuals to go beyond diving from the edge of a pool have been limited. Those who have learned to use a diving board have either learned these skills on their own or have been encouraged or coached by other persons who have shown an interest in working with them as individuals.

Apparent lack of enthusiasm for teaching blind persons to dive is a direct result of traditional attitudes toward blindness which, unfortunately, have had the same limiting effects on other activities. Because of overprotective attitudes shared by the general public, including many who work with visually impaired persons, activities which could be dangerous have often been felt impractical for these individuals.

Serious injuries from diving are possible. However, this danger is not based on whether an individual is blind or sighted. Key factors and important considerations are the person's safety habits and ability to use sound judgement in estimating capabilities and recognizing limitations.

Lack of eyesight obviously presents some problems which must be considered to insure maximum safety for blind and partially sighted divers. Proper safety habits must be emphasized around diving boards and swimming pools from the beginning. Progressions from one skill to the next must be gradual and planned. When careful consideration is given to individual abilities of students, they should be as safe as divers with sight.

Values and Objectives

Few activities can counteract restrictive attitudes toward visually impaired persons as dramatically and effectively as diving. Since diving for blind persons is still relatively new, many observers are somewhat shocked at first to learn that an individual poised at the front edge of a springboard is blind. On numerous occasions in special classes as well as regular recreational swim programs, blind individuals with skill and confidence in diving suddenly have no longer been thought of or treated as severely handicapped.

Necessary adaptations are readily accepted and understood by other divers. Blind persons who dive seldom look upon blindness as a handicap. To sighted persons, these blind divers are simply other members of the group. A more favorable and positive objective could not be hoped for in any program.

Because of the nature of diving, accomplishment of each step is a most satisfying experience. As each new skill is accomplished comes further realization of capability in diving as well as increased confidence. Objectives of each student are varied and not necessarily constant. What is an ultimate goal today may very shortly be an accomplished skill and reason for moving to higher goals.

For some, ability to perform a head-first dive from the edge of the pool may be all that is needed to boost self-confidence or develop better self-image. On the other hand, just knowing that a three-meter board is at the pool may be enough incentive to make one want to learn how to use the high-dive with skill and confidence.

Diving Restrictions. From previous paragraphs, answer to the question of whether or not diving is a practical activity for blind persons should be obvious--emphatically yes. In following pages various techniques by which diving can be made safe and practical for blind and partially sighted persons are discussed in detail. However, the question of whether or not a particular blind individual should be allowed to dive cannot always be answered by a simple yes or no. As with other physical activities, medical recommendations for an individual should be followed. Because individuals in the medical profession are human, they may have some fears and negative attitudes toward diving. Furthermore, they are not necessarily immune to traditional feelings regarding capabilities and participation of blind and partially sighted persons in physical activities. It is extremely difficult at times to determine how much of a restriction is actually based on medical reasons and how much is extra precaution based on emotional feelings. This problem continues to be a research subject for adapted physical education specialists.

In general, types of eye conditions which may restrict participation in diving are those in which internal hemorrhaging occurs from pressure or sudden impact of water against the eyes. Another point to consider is whether impact or pressure can cause further damage to remaining vision of a partially sighted person. When in doubt, follow medical advice.

Diving from the Edge of the Pool

Diving, like most other physical activities which involve definite patterns of movement and timing, appears effortless and trouble-free when done by one who knows how. A goal of every diver is to make movements and timing of each dive so automatic that every dive is almost effortless.

Beginners should understand that while diving can be safe and relatively easy to learn, there is much more to it than simply stepping up to the edge and plunging into the pool. While some beginners have tried this and succeeded, it is poor practice and chances of having an unnecessary accident high. While all divers occasionally experience a few bad landings, there is no reason to increase danger and possibly allow a serious accident to occur. Certain problems exist for all diving students; a few additional ones must be faced by blind or partially sighted persons. Many factors which seem restricting to progress can be eliminated one by one as adapted methods are introduced to counteract lack of sight.

Partial Vision and When to Use it. Since many individuals classified as blind have varying degrees of partial vision, both student and instructor must know to what degree remaining vision can be effectively used and in which situations to rely entirely upon adapted techniques. All techniques discussed are appropriate to and applicable for totally blind individuals. A skill requiring use of only one visual cue or reference is not practical or possible for totally blind persons. If there is doubt as to how useful remaining vision may be, methods suggested for totally blind students should be emphasized from the beginning. In this way after skills have been accomplished and learned thoroughly, a student may safely and effectively use remaining vision rather than depending upon this vision as a crutch to get through seemingly difficult situations.

As a safety precaution any individual whose eye condition can be described in any of the following ways should be taught as if totally blind:

- Ability to see well straight ahead but with no side or peripheral vision.
- Difficulty in depth perception or in estimating distances accurately.
- Having object and color perception, but with edges and images blurred.
- Ability to distinguish shapes and colors at close range.
- Any lesser degree of vision or light perception.

Orientation to the Diving Area. Just as it is essential for a blind person to become completely familiar with pool surroundings when learning to swim, orientation is equally important--if not more so--for diving instruction. Of special importance is complete knowledge of pool depth and contour of the pool bottom. This is important for safety reasons and does much to eliminate a beginning student's fears of plunging into an uncertain area.

Swimming Ability. Usually any person about to learn to dive has some swimming skill. However, this is not always the case. A blind student should be tested and observed by the instructor and swimming ability carefully evaluated. If an individual jumps into a pool and then struggles back to the side, more instruction and practice in treading water, survival swimming, and water skills in general are in order to improve confidence and skill before attempting diving.

To some students just the idea of dropping beneath the surface of water is frightening. These fears must be dealt with honestly and eliminated or reduced to a minimum before diving is attempted. Experience has shown that fearful divers often plan recovery before entering the water. Results are not only discouraging and sometimes a little painful, but chances of successfully learning diving skills greatly reduced.

Progressing to a Standing Dive. The first head-first plunge into water is a completely new and different sensation for all divers. For a blind person this experience is basically the same. Not being able to see the landing area or not knowing how far one will fall before entering water has to be considered also. Difficulty in maintaining orientation in flight is only a minor problem in beginning dives from the edge of a pool; as the height of a dive increases, this problem becomes more noticeable.

Instructors should be aware of uncertain feelings a blind student may have toward plunging head-first into a pool. While visual cues are reassuring to sighted divers, kinesthetic feedback and proprioceptive sensations felt during a dive are the same for blind and sighted persons. Instructors should think of students as individuals with normal fears and normal abilities, not as individuals in a special category because of a sensory impairment. If a student can demonstrate ability to be safe in water, there is no reason to believe that progress in learning to dive should be held back because of blindness.

Basically, the same progressions from beginning to standing pool-side dive are used for both blind and sighted students. These include in order: (1) jump feet first into water, (2) dive from a low kneeling position with one knee on the edge of the deck and toes of the other foot curled over the edge of the pool, (3) dive from a semi-standing position with knees bent in the starting position, and (4) dive from a full standing position with legs straight. In some cases, diving from a position in which a student sits on the edge of the pool with both feet on the gutter rail is inserted in the progression before the semi-standing dive.

A practical means of progressing from one step to another is to remain at the step being learned until the student performs the dive properly. In this way, mistakes can be confined to minor ones and a poorly directed dive most likely will not be painful. If a mistake does occur, return to the previous step and practice it a few more times. Although this procedure may seem time consuming, it is a good process to develop during early stages because of its absolute necessity for safety reasons when learning to dive from higher positions.

Just as in teaching sighted students, the importance of tucking the head and keeping it between extended arms must be emphasized. A blind student cannot see these fine points demonstrated by an instructor diving into a pool. Therefore an instructor can assume various diving positions on the pool deck and allow the student to feel various positions of head, arms, and bending of the body. The instructor must use clear, concise verbal descriptions of every movement taught.

An additional approach which makes a blind student more conscious of proper diving form is demonstration of both good and poor dives. No special skill is necessary to detect poor entry from the sound and splash made by an instructor. Another method of emphasizing proper entry is by telling the student to think of the hands cutting a hole in the water for the body. Since in succession head, shoulders, hips, knees, and feet follow the arms into the hole, there should be very little splash and the individual have a smooth comfortable feeling as they body enters the water. However, if

the hands cut a hole in one place and the body falls outside this hole, as when the knees are dropped, any parts of the body striking the water outside thie original entry point have to cut new holes. The resulting landing has more of an impact, is less comfortable, causes more splashing of water; and creates more noise. Since it is impossible to see various parts of the body, the instructor may point out tactile points of concentration such as feeling inner edges of the feet touching each other, feeling knees and feet extending, and feeling inner edges of the knees touching each other.

Bounce or spring from the edge of the pool should not be introduced until a student can successfully enter the water by standing in a proper position and leaning foward toward the water until equilibrium is destroyed and he/she plunges forward. Spring should be introduced gradually since beginners often forget many previously learned steps in an effort to leap higher and farther than practical for this stage of development. The idea of following the head up, over, and down is probably the most difficult part of a dive for a beginner to understand. However, this is not a problem because of lack of eyesight. A common technique involves holding a rod or arm in front of an individual and asking him/her to dive over it. The rod is at first held only a few inches above the deck and just slightly beyond the gutter to emphasize going up and over before dropping into the water. If previously learned steps are ragged and a diver seems to lose form, lower the hurdle and reiterate the concept of following the hands into one small hole in the surface of the water.

Unlike most other dives the objective of a racing dive is to travel out rather than up, over, and down. Because of this difference, it is not usually as comfortable as a normal standing dive. However, a racing dive need not be dangerous or extremely painful. The body enters the water almost horizontal rather than vertical as in most other dives. In reality this is a modified version of the undesirable dive commonly called a <u>belly-flop</u>. However, since most of the thrust is forward, landing is not usually as painful. Advantages of such a dive are mainly that it gets a swimmer into the water fast and almost immediately into position for stroking; it also allows an extremely shallow entry. Although a shallow dive, it is advisable to practice in deep water--six feet--at first to allow for error in case a diver decides not to make a shallow entry and sinks low into the water.

Although there are several popular styles for starting a racing dive, in general all begin with the body balanced and the toes curled over the edge of the pool or starting platform. Legs are usually spread about shoulder width for increased stability. The body is usually bent forward at the waist with the head directed straight forward and the eyes looking toward the opposite end of the pool; knees are bent to generate force during the push-off. Depending upon whether a diver prefers to start with hands at the sides, or whether hands swing around and back before the weight of the body is shifted forward, the dive is initiated by simultaneously thrusting arms forward and extending hips, knees, and feet to generate spring for the forward thrust.

Although this dive may seem difficult and more of a problem, it is actually no more dangerous than other dives even though the diver travels

further out into the water--approximately twenty feet total. The instructor or observer should be completely aware of this factor when giving a blind student an all-clear signal to dive. The importance of this cue for whomever is observing a blind diver cannot be over-emphasized. It is both false and dangerous for any blind person to assume that he/she can tell when it is clear just by listening. There is no way any individual can hear an underwater swimmer, especially in a public pool where there is more than the usual amount of splashing and noise.

Pool-side diving is really no different for blind or sighted persons. However, a blind student may have fear or anxiety about plunging into water and not seeing where he/she is going. Presence of a spotter or observer to give a blind diver an all-clear signal is an absolute necessity. Possibly, the only other adaptations necessary to enable rapid learning by blind students are clear, concise, verbal description of movements, and opportunities to feel the body of the instructor in various diving positions.

Springboard Diving

With the accomplishment of pool-side diving, a student who seeks a greater challenge may tire of pool-side diving and feel that it is simply another means of getting into the water. Entering the water from a greater height sooner or later becomes an objective of most diving students. Since most pools have some type of diving board as standard equipment, this possibility is often brought to the attention of divers long before many are ready for the board. The springboard presents a whole new series of challenges; to a blind diver, it presents a few new problems as well.

Special Problems for Consideration. Two obvious differences between springboard diving and diving from the edge of a pool are greater distance the body must travel and the nonstationary base from which the diver takes off. Part of learning to use a springboard is in adjusting to differences. Since the body is in the air for a relatively long period of time, awareness of body position in relation to the water and to the front edge of the board is extremely important. Without visual cues, a blind diver finds it necessary to practice each dive many times to develop the proper feeling for every new movement. To prevent painful landings on the surface of the water in the event of a poorly directed dive, most divers wear a sweatshirt or other protective clothing while experimenting with new dives. This does not prevent a belly-flop but reduces or may eliminate stinging from poor landings.

Impact of a dive from one meter or three feet is not severe enough under normal conditions to cause injury. However, practicing uncertain dives without some type of protection can result in an unnecessary number of uncomfortable landings. Before any attempts are made at springboard diving, a blind student needs to become completely familiar with the depth of the water and the contour of the pool bottom, location of the diving board in relation to the edge of the pool, structure of the diving board itself, and other details to be part of a landmark system for orientation to the area. If a board has an adjustable fulcrum, the blind diver needs to be shown how to operate this device and be made aware of its effect on the board.

As in learning to dive from the edge of the pool, a blind diver should take several feet first jumps from the board to become familiar with the time it takes to travel from board to water. Bouncing up and down several times from the front edge of a board so that the feet leave the board and then return to it to gain greater height should be discouraged from the beginning. While advisable to depress a board several times to feel the spring action, once the feet leave the front edge of a diving board, the next point of contact should be the water. Numerous accidents occur among divers who stand on the front end of a board and attempt to gain additional height by bouncing completely off the edge. Often they find that on return they miss the board by a small distance which can cause striking the head or body on the front edge or corners of the board as they fall toward the water. The bounce which sends a diver up and out should be a deliberate one which the diver knows is going to initiate the flight path of a dive. Once this thrust has occurred, make no attempt to return to the board.

Special consideration needs to be given to the way in which a blind diver mounts a board. Since a diving board is usually not much more than eighteen inches wide, it is somewhat dangerous for a beginner to step up and walk unaided to the front edge. Practical experience indicates that it is very satisfactory for a student to climb on the board as close as possible to the front of the deck or pool edge and then crawl on hands and knees to the starting position at the front end of the board. Instruct students to take a firm grip on the side edges of the board while on their way out. Since the board is mounted from the edge of the pool, this method eliminates danger of striking the edge of the pool if for some reason one slips off sideways. Actually, this technique almost completely eliminates any chance of toppling over sideways since the center of gravity is kept low until a diver is all the way out to the end of the board and ready to stand up to take the starting position for a dive.

Perhaps a few words are appropriate about attitudes toward this method of mounting a diving board. It is not implied that one should continuously crawl out on a diving board for all dives. This is the method to be used during instructional periods. As individuals gain confidence, let them choose to stand up and walk out on the board. An individual's attitude may conflict with this method in that he/she may think of crawling as awkward and making him/her look helpless. While it may cause skinned knees in the beginning, it has proved successful and has not attracted undue attention, even during competitive diving. Instead blind divers move more rapidly to take their turns on diving boards. This method actually creates a far less helpless image than trying to walk out slowly feeling the side edges of a board with the feet.

To attempt to hide blindness or a visual impairment when using a diving board is foolish and extremely dangerous. A spotter or observer is absolutely necessary to signal when it is clear to dive. If one can feel at ease in this situation, diving can be more enjoyable and safer as attention is focused on the dives themselves rather than to concern about physical appearance or behavior because of the condition. Experiences of blind participants in crowded pools demonstrate that once other divers are aware of a blind individual, they usually don't make an issue of the situation. In fact they usually take extra precautions for the safety of all

USING A DIVING BOARD

ADJUSTING THE FULCRUM...If a diving board has an adjustment device for regulating the amount of spring, each diver should be familar with the device and effect it has on the action of the springboard. Blind divers may make their own adjustments and either test the board by pressing it or by reading the engraved markings as shown above.

MOUNTING THE BOARD WITHOUT SIGHT...Regardless of which method an individual uses after gaining experience, a blind diver should first learn to mount a board as close as possible to the edge of the pool and then crawl out to the front edge of the board while taking a firm hold on the side edges on the way out. This keeps the center of gravity low and makes the diver more stable. It eliminates danger of toppling sideways onto the deck or into the water and greatly increases the safety of the diver as well as the safety of others in the pool below. This method is fast, practical, and has been used in collegiate diving competition with no penalty to scores of blind divers.

concerned. Their comments are generally not over-protective but designed to help blind divers. Since diving by blind persons is still relatively new to most sighted persons, everyone is more at ease when a blind person is at ease and not self-conscious about any unusual means necessary to find the board or move into diving position.

If a diving board has handrails extending beyond the edge of the pool, it may be impossible or impractical to climb onto the board at the pool edge. In this case, a blind diver needs to be shown how to use the diving board ladder and to walk out between the handrails. By the time one has reached the end of the handrails, he/she is over water. To avoid a possible miscalculated step and fall to one side, the individual might have to go down to the knees upon reaching the end of the rails and crawl the remaining distance.

This is a learning technique which a diver may or may not wish to continue. If one is willing to experience an occasional surprise fall, make sure that a spotter gives an all-clear signal before the student begins to walk out on the board alone. Otherwise, with the suggested technique, one may procede directly to the end of the diving board and take a ready position while waiting for an all-clear signal. This method has proven smooth, natural, and takes little time and effort. The longer the time between an all-clear and the time of a dive, the greater the possibility that another swimmer may move into the area and make it no longer safe to dive.

Diving from the One-Meter Board. Most special considerations mentioned are for springboard diving in general. However, all of these considerations apply to diving from a one-meter board. Assuming that a blind student has become completely familiar with the diving area, knows the feel of the board, and has an idea of approximately how long it takes to travel from board to water, he/she is ready for the first real dive.

As in pool-side diving, first attempts are more like head-first falls than dives with thrust from the legs. As soon as a board is bounced, there is often a tendency for the feet to flip up and over too far by the time a diver reaches the water. For this reason, make attempts to bounce the board gradual.

To some degree, a sighted diver can control the flight of a dive by raising or lowering the head. While trajectory or path followed by a diver's center of gravity cannot be changed once the diver is in the air, various head and body movements made in flight can correct one's position on that path prior to entry. Without sight these adjustments are a matter of memorizing the feel of proper angle or lift from the board and developing a feel for timing a dive. If a bouncing take-off produces wrong results, a diver should return to a less forceful thrust from the board and learn the sequence even more gradually. All divers must eventually learn how a dive feels. However, when one is blind, concentration on the feel of a dive is from the beginning.

If fear of poor landings inhibits performance, a student should wear a sweatshirt while practicing; when one can perform a dive consistently, a sweatshirt is no longer necessary. This is no set list of types or specific dives possible and practical for blind persons off one-meter board. Ability of each student is the deciding factor in determining how far one goes. Dives which have been successfully accomplished totally without sight from one-meter boards include:

Forward Dive: layout position (Swan Dive)
Forward Dive: pike position (Jackknife)
Forward Somersault: tuck position
Forward 1½ Somersault: tuck position
Forward Double Somersault: tuck position
Back Dive: layout position
Back Somersault: tuck position
Back Double Somersault: tuck position
Inward Dive: tuck position (Cut-away)
Reverse Dive: layout position (Half Gainer)
Reverse Somersault: tuck position (Full Gainer)
Back Dive with ½ Twist: layout position
Forward Dive with ½ Twist: layout position
Forward Somersault with ½ Twist: tuck or pike position
Hand-stand Dive: head-first entry
Hand-stand Dive: arch over with feet-first entry
Hand-stand Dive with ½ Twist: arch over with feet-first entry

Dives involving more than one somersault, such as forward one-and-one-half forward double, and back double, should be attempted many times with a sweatshirt on until a diver can make a safe entry consistently. Because of increased speed of rotation, a poor landing with no protection may be quite painful. The major difficulty for a blind diver in somersaulting or twisting dives is loss of orientation during flight. However, these dives can be tried, tested, and spotted safely on a trampoline with use of a spotting belt in which an individual can be held upright if landing is going to be wrong. The greatest difficulties with using a trampoline as a practice area are that no head-first entries may be practiced and distance the body must travel from board to water can in no way be simulated. However, a trampoline can be extremely helpful in giving one sensations of diving movements, and with practice, one can accurately estimate adaptations necessary when trying stunts from a diving board.

Single somersaults can be spotted in shallow water. To spot a somersault in shallow water, an instructor stands beside a student in three to four feet of water. The instructor assists the student to rotate through the air as the water assists in floating the body up and makes the task of lifting and rotating easier. If water is too deep, a student is not able to get low enough to thrust upward with the legs.

To spot a back somersault the instructor places one hand on the shoulder of the student and the other hand above the knees on the backs of the legs. As the student pushes up with a thrust movement and throws the arms up and back, the instructor assists by pushing upward with the hand on the legs while supporting the shoulder with the other hand to prevent the student

from dropping to the bottom of the pool. While this does not produce the same feeling as doing somersaults in air, it does give a student an idea of desired movements. This procedure also enables instructors to evaluate movements and determine when a student is ready to try the stunt from a one-meter board.

In spotting a front somersault the shoulder still has to be supported, but the other hand cannot be placed behind the legs. Since the legs are brought up into a tuck, the instructor watches for this movement, then places the free hand on the front of the legs below the knees and pushes upward while supporting the shoulder with the other hand.

Which hand is placed on the shoulder and which used to lift the legs when spotting a beginning diver through a somersault in shallow water depends upon direction of rotation of the somersault and the side of a student from which an individual chooses to spot. A spotter carefully plans what is to be done and mentally goes through procedures while concentrating on exactly what is to be done with each hand at various stages of every movement. Each spotter decides which is the stronger arm and uses that arm and hand when and where greatest leverage is needed.

An example is shown for spotting a back somersault from the right side of a beginning diver. The spotter stands to the right of the student and faces his/her right shoulder. The left hand is placed on top of the student's shoulder and the right hand used to assist in lifting the legs after the thrust movement has been initiated. In this hypothetically case, the spotter has stronger left arm leverage. If right arm and hand are stronger, spot movements from the student's left side so that the stronger hand supports the individual's shoulder during the heavy part of the somersault. In a front somersault, reverse hand positions on shoulder and legs.

Control of the Body in Flight. Since a blind individual cannot observe visually various dive positions as they normally occur during flight, it is necessary to know these positions as well as what to do to change rotation speed while in the air. The three basic dive positions--tuck, pike, and layout--can be demonstrated on the ground. They can be accurately described by mentioning specific positions to assume or comparing positions to situations familiar to the student. For example, describe the tuck position as similar to a turtle-float in which the head is brought forward until it touches the chest and the knees are brought up to the chest with the hands around the legs and grasped below the knees.

Since normal impulse to make a corrective movement in the middle of a dive if something feels wrong is usually not the safest and most practical thing to do, all divers, especially those who are blind, must know and be able to apply a basic physics principle--speed of a rotating body in space increases or decreases by shortening or lengthening the radius of rotation. For example, if a body is rotating, speed of that rotation increases when the outermost portion is brought in closer to the center. A traditional experiment involves twirling on a piano stool with outstretched arms and weights in the hands. When the arms are brought in closer to the body, the individual spins faster. This same principle is used by ice skaters to increase or decrease speed of their spins. This principle applies directly

to diving as a safety factor as well as a means by which various dive movements can be perfected.

Another general rule indicates that the body follows the position of the head when external forces are applied. In performing a forward dive, if the head is held high the body flattens out in air and landing will probably be in this position. Conversely, if the head is tucked too far into the chest, the feet may fly too high into the air and the body completes a partial somersault so that landing on the back is a distinct possibility. In free flight, if the head and feet are raised, the hips drop; if the head and feet are dropped, the hips rise.

While these are examples of general principles which need to be understood by all divers, they are especially important to blind divers to compensate for inability to observe demonstrations visually. It is important that blind divers be made aware of head positions and that they know when they are looking straight ahead. Otherwise, some may throw a twist into a dive and, if not intended or expected, they may lose orientation and be led by a natural impulse to make incorrect and untimely corrective movements. Since twisting is desirable in many dives, it is important that blind divers become familiar with twisting movements and how to initiate them. These concepts can be introduced in a spotting belt on a trampoline or on a tumbling mat.

Stunts such as a hand-stand dive or hand-stand with one-half twist may be practiced safely with the assistance of a spotter on a tumbling mat. On the diving board, make sure that the arms are kept extended and locked throughout the hand-stand. If the body is then allowed to fall out of the hand-stand and into the dive, there is little danger of the head or body striking the diving board on the way down.

The usual sensation experienced by most divers during their first few attempts at somersaults, especially forward somersaults is a feeling of being completely lost while spinning. This problem is greatly magnified when one cannot see the water below in preparing to untuck and enter. Practice these dives at first with body protection from a sweatshirt. In this way it is safe to practice somersault dives from a one-meter board while remaining in the tuck position until timing and speed of rotation have been mastered. No eyesight or practice are needed to determine how a body enters water. One need only remember which part of the body felt the impact!

Since twisting and somersaulting movements are unlike anything anyone experiences on dry land, it takes several attempts to convince a beginning diver that these movements, unusual as they may feel, are actually a normal part of diving. Eventually they feel natural and comfortable as they become familiar with various movement patterns for each type of dive.

The Three-Meter Board. The fact that three-meter boards are found at many pools many be enough incentive to motivate divers to seek this new challenge. Blind or visually impaired persons are no different from others in these situations. If they have ability and background and the will to learn, they can learn to use three-meter boards confidentally.

Basically, procedures are the same for three meter boards as for lower boards. Divers apply the same physics principles and consider the same safety precautions as in one-meter board diving. One obvious difference--the board is more than six feet higher--makes some adjustments necessary. Since the body is in the air for a longer period of time, corrective movements such as head tilt or lean, or movements to change speed of rotation, have more effect on the body by the time it reaches the water. If a back somersault is thrown from a high board with the same force exerted from a one-meter board, the body completes the motion while more than six feet above the surface of the pool. Unless controlling movements are made by a diver, he/she continues to over-rotate which could cause landing on the back.

Best diving form is accomplished by completing as much of a movement as possible at the top or peak of a dive so that fall is vertical toward the water. However, a beginner needs to make movements more slowly so as to complete them just prior to water entry. For best diving form one should travel up, over, and down as close to vertical as possible. However, for a beginning diver without sight it is safer and more practical to throw dives out a little further than normal to prevent any possibility of striking the board on the way down.

The most practical approach in all springboard diving is to emphasize safety as the most important objective in learning each dive. After a student has learned control of body movements and is master of the situation, then, and only then, is it advisable to work on improved diving form. Since distance from board to water is three times as great as in one-meter diving, mistakes made from this height are greatly magnified by the time the body enters the water. As compared to a velocity of approximately eleven miles per hour when diving from a one-meter board, the body is traveling close to twenty miles per hour at impact or entry from three meters or ten feet. Since poor landings from this height can be extremely painful, practice with a sweatshirt is extremely important. Legs may be protected from slapping against the water by wearing sweatpants during early stages of learning and practicing dives from this height.

Swimming with heavy clothing is usually more difficult than regular swimming. Therefore, students should jump into the pool while wearing clothing they plan to wear during diving practice. This is designed to help students gain confidence and realize that added weight does not necessarily cause them to struggle in water. Since a wet sweatsuit may pick up as much as fifteen to twenty pounds of water, amount of thrust needed to execute certain dives is not the same as when simply wearing a swim suit.

Remembering that any changes in movements from a height of three meters must be made in a gradual progression to avoid unnecessarily dangerous landings, a beginner should consider the following plan for changing from a protective training system to regular diving: progress from a full sweatsuit to just a sweatshirt and then to dry sweatshirt to make transition from a protective situation to a regular diving situation safe and gradual.

As in learning to dive from a low board, progression from one skill to another needs to be gradual and each movement practiced thoroughly before going to the next step. Initial attempts from three-meter boards are feet-first jumps so students become accustomed to the feeling of traveling the greater distance. Therefore, students should take several jumps from one-meter boards to make sure that they can maintain vertical positions from board to water. The importance of correctly positioning the head is critical at this early stage. If the head tilts forward when jumping from a three-meter board, the body tends to tilt forward and landing can be flat on the water. If the head tilts up or back, the tendency is to rotate over backwards. When learning to jump from high boards, adding a bounce should be even more gradual than from low boards. Any mistakes made from a three-meter board are greatly magnified by the time a dive has been completed. Therefore, progressions for every dive should be planned carefully and movement from one step to the next slight.

As in one-meter diving the number of possible dives from a three-meter board by a blind person is unlimited. Assuming that a student has mastered basic skills in diving, degree to which one may advance in three-meter diving is greatly influenced by an individual's ability to adjust physically and psychologically to the increased height. Ability to form some type of mental image of what one is doing while performing dives is essential. Some dives which have been safely and successfully learned by divers from three-meter boards without sight include:

Forward Dive: layout position (Swan Dive)
Forward Dive: pike position (Jacknife)
Back Dive: layout position
Back Somersault: tuck position
Back Double Somersault: tuck position
Back Dive with ½ Twist: layout position
Reverse Somersault: tuck position (Full Gainer)
Double Reverse Somersault: tuck position (Double Gainer)
Hand-stand Dive: arch-over with feet-first entry

Clown Dives

Thus far diving has been rightfully treated seriously and with special emphasis on safety. To think for one moment that diving is danger-free is foolish. However, once proper safety habits have been formed, diving can be full of fun and enjoyment for all who try it. Fancy stunt dives which look almost like accidents or crash landings should only be performed by skilled individuals. However, with practice, confidence, and a thorough understanding of diving in general, blind and visually impaired divers can also have fun performing clown dives.

To call some of these water entries dives is stretching the definition of the word. However, as in other diving activities, there is no reason to limit the degree to which an individual may progress in this area. Before discussing some of these unusual dives, it is important to mention when and where they may be used.

Since the usual objective of clown dives is to make a big splash, the diving area must be free of swimmers not interested in this activity. A sudden mouthful of water caused by waves created by a splash from a clown dive can make an experienced swimmer panic. For this reason these dives are not always permitted at crowded public pools. It is not courteous to splash large quantities of water on others unless they are a part of the activity. This is similar to having water fights; they can be fun but only if everyone involved is interested in participating. Assuming that one has opportunities to splash around in water, the following are some stunt dives which have been accomplished by individuals without sight.

Flying Seat-Drop is actually a jump into the water in which a diver lands in a sitting position with the legs extended and the toes pointed; the arms are kept at the sides with the hands flat and parallel to the surface of the water. If a blind student wishes to feel this position, simply sit on the floor as described. This is exactly the same position as a seat drop on the trampoline. Since slapping the legs flat against water can be painful, this stunt should be performed only while wearing sweatpants or some other protective clothing over the lower half of the body.

This dive is recommended only for one-meter boards or lower. Since the major objective of this dive is to get a good laugh, what could be more ridiculous than diving or jumping into a pool fully clothed? The result of this dive is a loud slap on the water and a good splash. With protective clothing it is completely painless.

The Preacher's Seat is also a sitting dive. Imagine a seat-drop position that is tilted back so that upon water entry the hips enter first with the feet and head following and entering at approximately the same time. A method of learning this position is to get on the floor with the legs and upper body raised into a V. Variations include spreading the legs apart while the hands are folded in the lap in a praying position. With practice this stunt can be safely and comfortably performed without protective clothing. Resulting noise and splash are similar to that from the Flying Seat Drop. However, because the body does not enter the water flat, the V shaped position at entry creates a wedge effect that results in a higher and wider splash.

The Can Opener is actually a modification of a feet-first jump into a pool. This stunt can be done safely from either one or three-meter boards. However, since they dive requires a set position of the body prior to entry, practice the stunt several times from a low board to master the feeling of the movement. After leaving the board the diver brings one knee up to the chest and holds it in position by grasping with both hands around the leg below the knee. The other leg is extended with toes pointed to cut a hole in the water for entry. Since a narrow body segment enters the water followed by a wider mass of the body, a funnel effect is created resulting in a wide high splash and a loud ca-boom sound. Entry is not completely vertical but tilted back slightly. This backward tilt does not take much conscious effort on the part of a diver from a three-meter board; simply raising the head slightly when starting down accomplish this.

Cannon-Ball is a stunt in which a diver jumps from the board and while on the way down tucks the body into a ball for water entry. In a regular cannon-ball the diver maintains an upright position and enters the water while still grasping around the legs below the knees. This can also be performed as a spinning cannon-ball in which the diver tucks tightly and initiates a forward somersaulting motion while remaining tucked throughout the entire stunt. Spinning cannon-balls should only be performed from one-meter boards or lower. Since landings are almost always unpredictable, perform cannon-balls only while wearing protective clothing such as a sweatshirt.

The Importance of Visual Imagery

All dives require learning set movement patterns. However, the most important factor in determining one's degree of progress in diving--especially blind divers--is ability to form some type of mental image of what the body is doing in the air and where it is in relation to diving board and water. Most divers agree that head-first entries are easier when the body is rotating forward and feet-first entries easier when the body is rotating backward. This is because divers can see their landing areas before preparing to enter the water. Although blind divers cannot see the water below, their awareness of body movements indicate direction of dives. Ability to perceive direction of dives is also much easier when rotating forward for head-first entries and backward for feet-first entries. However, this is not automatic.

Diving is not a matter of simply initiating a thrust movement and waiting for water entry. Divers must constantly be aware of what they are doing and where they are in relation to the water. Even without sight it is often possible for one to make corrective movements to improve entry of a dive. Corrective movements are possible for totally blind divers after they get the feel of particular dives and are aware of what they should be like when done properly.

Once a dive has been initiated, no attempt should be made to change one's mind in flight. If a diver leaves the board and suddenly feels in trouble, injury is more likely to occur by suddenly opening up and attempting to break the fall than by staying with a dive to its completion. A diver is most likely to face this situation when attempting dives in which the body is facing in one direction and rotation is in the opposite direction. For example, in the reverse somersault or full twister the body is facing forward toward the pool while rotation of the somersault is backward toward the diving board. Beginning divers are often convinced that they are deliberately throwing their heads toward the edges of diving boards. Since there is as yet no practical means by which blind divers can safely take running and hurdling approaches, they are at distinct disadvantages in these situations since they cannot get added thrust to move out and away from diving boards.

While the reverse somersault can be safely and successfully accomplished by blind divers, it is not practical until one can form some type of mental image of involved movement patterns. A practical method of

demonstrating these movement patterns to blind divers is through taking motion pictures. With a camera mounted in a fixed position, a skilled individual is filmed performing the dive. Then while projecting various frames of the sequence to show significant positions of the dive, an outline of the diver's body is traced onto cardboard. These frames can then be reproduced by pasting cut-out forms of the diver's body on a separate sheet which a blind student can examine tactually.

Since the motion picture camera is mounted in a fixed position, relationships of diving board to water and to diver are constant. By reproducing several frames in this fashion a blind student is able to form a more accurate image of proper diving form and is able to learn the timing of various diving movements. After learning to perform a skill safely, one of the student's own dives can be similarly photographed so that comparisons can be made with the original sequency and areas of his/her dive needing improvement identified.

Safety Tips for the Blind Diver

While emphasis has been given to safety first throughout this chapter, areas of special concern are reviewed briefly at this time. If these points are clear to both instructor and student from the beginning, there is no reason for excessive fear or anxiety in teaching blind persons to dive.

Safety in and Around the Pool:

- Be sure that a blind student is completely familiar with the pool and its surroundings; give special attention to both permanent and moveable equipment.
- Be sure that a blind student is promptly notified of any changes in equipment such as new ladders, springboards, or rails since these items are commonly used as points of reference by blind persons.
- Be sure that a blind student is capable of handling him/herself in deep water before beginning diving instruction.
- Be sure a blind student is familiar with depth and contour of the bottom of the pool, where deep water starts, and how far out from the edge of a diving board shallow water begins.
- Teach blind students to be aware of others in the area to minimize collisions in and around the pool.
- Handle personal reasons a blind student does not wish to carry a cane or use a guide dog around the pool area at an appropriate time with the individual. Be sure the student has some safe means of navigating in the area before beginning an activity since collisions with others who have no way of identifying a blind person may result in one's falling into the pool or possibly in some more serious injury.

- Remind blind students that they should never jump or dive into a pool unless absolutely sure that it is safe and clear--a spotter or observer to give an all-clear signal is a necessity.

Safety on the Diving Board

- Be sure that blind divers are completely familiar with the board and its parts before allowing them to use it.

- Teach a blind student to crawl out on that portion of a board that has no protective handrails and to mount the board as close to the edge of the pool as possible when a diving board has no rails at all.

- Be sure that blind students from the beginning form the habit of waiting for an all-clear signal from an observer before leaving the board; dependence upon sound alone is dangerous as it is impossible to hear an underwater swimmer.

- Never attempt to return to the pool deck by climbing back on the board and down the ladder once reaching the end of a board. This only increases changes of falling and causes much delay in use of the board by others. If there is sufficient reason for not continuing a dive after mounting a board, the spotter should supervise or assist the individual back to safety.

- Never allow a diver to take extra bounces from the end of the board to gain more height; once the feet leave the front edge of the board the diver should be on his/her way to water.

- Make sure a blind diver is aware of the safest and quickest direction to move upon completion of a dive to clear the area for the next diver.

- Allow nothing to prevent a dive from continuing its flight path once the dive has been initiated.

- Be sure that a blind diver is not standing on the board itself when another diver is using it. A little concentration is all that is needed to distinguish standing on the board from standing in line on a ladder.

- Be absolutely certain as a spotter or observer that the area is clear before giving a signal for a blind diver to go. Once a diver has left the board a spotter who must get the attention of another swimmer moving into the area by shouting hold it is also warning the diver. The usual result is that the diver either looks up or turns the head and changes body position so that an unsafe landing is possible.

Summary

If one phrase could accurately describe the approach to be taken by both instructor and blind student learning to dive, it would be common sense. This includes ability to analyze each new situation with safety in mind and to make wise judgements--judgements not warped by traditional attitudes toward blindness or filled with uncertain and unrealistic goals which might result in possible injury to a student. No skillful diver has ever outgrown need for safety. If safety is considered as much a part of the activity as dives themselves, blind individuals can look forward to many enjoyable experiences and a tremendous boost in self-confidence and self-image from learning to dive.

SURVIVAL SWIMMING AND LIFESAVING

> I've never let stereotypes--like a blind person can't do that--stand in my way.
>
> Bill Schmidt

As beginning swimmers gain confidence in new skills they often suddenly discover that aquatics have new meaning and have expanded into a world of opportunity far beyond anything that had been anticipated. No longer is recreation in water thought of as simply thrashing across a pool or playing games in the shallow end of the pool. Boating, diving, and swimming in deep water are only a few activities which had seemed forbidding but now are interesting and inviting.

It would be ideal if all beginners could change from shallow water to advanced aquatic activities with no serious problems; unfortunately, this does not always happen. Each year water accidents occur to people who were incapable of participating in activities being attempted. Accidents in which nonswimmers get tossed from small boats or inexperienced swimmers venture into deep water and are unable to make it back safely should never occur. The most effective way to prevent these situations from happening is for participants to obtain a thorough knowledge of survival swimming and lifesaving techniques. These two topics are discussed in this chapter to emphasize their values before exploring the wide variety of aquatic activities to follow.

With mention of survival swimming and lifesaving, two questions almost immediately come to mind. What exactly is involved in such training? Of what significane are these topics in a book dealing with aquatic recreation for blind and partially sighted individuals? If it were not for long established attitudes and misconceptions on the part of the general public, answers to these questions would be obvious. To most people who have never been trained, lifesaving and survival swimming seem to indicate courses for someone planning to be a lifeguard or expecting some day to be involved in a violent water accident in which he/she may have to swim for a long period of time to survive. However, the three major objectives of lifesaving courses are:

- Teach personal safety.
- Give an individual a thorough understanding of his/her capabilities and limitations in water.
- Teach one to make wise judgements and to do the right thing to assist other swimmers in emergency situations.

Knowing how to stay afloat and survive in water for extended periods of time are valuable tools for any person who enjoys recreation in or near water. However, techniques in survival swimming are especially significant to one who is blind or severely visually limited. Annual reports of numerous unnecessary water accidents are not reports about impaired and disabled swimmers as such. For the most part these are reports about people who used poor judgement, were improperly trained or prepared for

activities being attempted, and in almost every case, individuals who were careless.

Because of the very nature of visual limitations, most blind or partially sighted swimmers often receive closer supervision in water than sighted persons. Yet we must face situations honestly and realize that real dangers exist. If visually impaired persons are to enjoy safe participation in aquatics, such dangers must be eliminated from these activities.

As previously discussed, a major difficulty facing blind participants in aquatic activities is orientation in water. Talk to blind persons about experiences in swimming and odds are high that they will discuss having lost direction and being rescued from deep water at some time or another. A blind swimmer with limited ability who is alone in deep water is in serious trouble. If one must depend on the scum gutter as a resting point and does not know where it is though only an inch out of reach, that individual might as well be out in the middle of deep water. Technically every time a blind swimmer plunges into a pool is a survival swim. This is not to say that a blind person in deep water is always in danger or that one must have somebody with him/her at all times. Survival swimming techniques should not be thought of as an alarm system that is only used in time of serious emergency. These skills can and for all good swimmers do become part of regular recreational swimming techniques.

Watermanship was discussed in a previous chapter. The ability of an individual to be completely at ease in water is a major requirement in survival swimming. Most experienced swimmers agree that security they had while standing in shallow water during early experiences as beginners can in no way compare to confidence gained in deep water. The importance of this attitude cannot be over emphasized for blind or partially sighted swimmers. Since aquatic recreation often takes place in rivers or lakes where bottoms may drop off suddenly with no warning, swimmers must be able to make it back to safety on their own. Swimmers who do not have to rely on a shallow bottom for support do not have to be concerned about sudden changes in depth and can enjoy water safely without fears which have ruined these activities for so many others.

Forming a Healthy Attitude Toward Aquatics

Sound training in techniques of survival and personal safety should become part of everyone who enjoys recreation in water--impaired, disabled, handicapped or not. It seems strange in an activity which can be so dangerous with inadequate training and preparation and so enjoyable and safe with proper training. It is really a matter of developing proper attitudes. This is no different than the common sight of automobiles with seat belts tucked under seats or hanging out under doors rather than being used by passengers. It couldn't happen to me is the usual familiar attitude. Despite the fact that accidents continue to happen, many people cling to this philosophy. Obviously it is easier to have fun now and worry about safety training later! After all, it takes time to learn proper water safety skills.

With the exception of special situations noted earlier, most material in this chpater is no different from what would be presented to sighted persons. Again the problem of attitudes must be faced. It is true that blind and partially sighted persons have some special problems. However, these are often built up completely out of proportion. Most people can be convinced that blind individuals can be taught to swim safely; courses in lifesaving and survival swimming are another story.

By re-examining situations, more realistic attitudes can be considered. If swimming and other forms of aquatic recreation are to be truly safe, they should be as safe for impaired, disabled, or handicapped individuals as for noninvolved persons. If unique problems caused by one's physical condition can be neutralized by an adaptation or introducing a new technique, then everyone is on an equal basis and should be treated as such.

If this is the case, how and why do blind and partially sighted persons become involved in proper training for survival swimming or lifesaving courses? The first step is to work on attitudes. A student should not undertake this training simply because of force or advice. Individuals must want to train in lifesaving and survival swimming because these activities make them safe in water and enable them to participate fully in aquatics. They build respect for water rather than fear of it. All good swimmers or aquatics enthusiasts should think of watermanship and sound safety training as the most valuable aquatic skills they can ever learn.

Training Programs

Courses in lifesaving and water safety, such as those offered by the American National Red Cross, are excellent and highly recommended for blind and partially sighted swimmers seeking such training. While various methods of survival and rescue are mentioned, specific techniques for teaching these skills to blind individuals are not discussed in detail. Skills and reasons for them are the same regardless of the student. Specialized or adapted methods for teaching blind students are discussed in detail in the Chapter entitled Who Teaches Aquatics and How.

All skills required in survival swimming and lifesaving courses can be accurately taught to blind students by applying methods discussed in the previous chapter. Generally speaking, these techniques are not highly technical and only require a little imagination and carefully thought out lesson sequences by instructors. They involve such considerations as using clear, concise verbal descriptions and allowing blind students to feel demonstrations of movements as they are performed by other students or on themselves. In well organized lifesaving courses students usually choose partners and practice new skills in slow motion on dry land and then in shallow water before attempting them in deep water.

This type of practice is ideal for blind students. In going through maneuvers such as the chin-tilt, hold for a cross-chest-carry, or a front head-hold release, there is no question on the part of blind students as to what has to be done. Physical contact with partners and concise verbal instruction as to whether moves are being made properly or improperly put

blind students on an equal basis with sighted students in the class. This is often apparent when skills are practiced for the first time in deep water. As partner teams go through maneuvers, especially below the surface, blind students often have little or no added difficulty. Sighted individuals have reported that when practicing a swimming rescue with a struggling victim they often have to depend completely on the sense of touch while underwater.

Objectives of Survival Swimming and Lifesaving

Reasons for gaining knowledge and skill in survival swimming should be clearly evident. For purposes of improving general safety in or near water, this book is concerned with the following three major objectives in a survival swimming program:

- Improve watermanship.
- Eliminate danger caused when a blind person becomes disoriented in deep water.
- Eliminate possibility of panic when a blind person finds him/herself in an unexpected situation in water.

It goes without saying that when the first objective is accomplished, objectives two and three soon follow. Key to successful accomplishment of these objectives is simply staying above situations; one must be relaxed and at ease at all times in water. It is not possible to turn panic on and off as desired. Once panic sets in, it is usually too late to do much about it. We often hear of need to teach swimmers to relax in water. Similar to panic, you can't tell a person to relax and expect it to happen automatically. Feelings of confidence and ability to stay above situations come with watermanship.

One question which is sure to arise concerning this matter is, When does one know that he/she possesses watermanship? This is something most instructors cannot fully answer as swimmers know long before instructors. However, there are some definite signs which tell swimmers they are ready for deep water activity:

- Swimmers are no longer concerned about how deep the water is or whether or not they are tired before making it to the other side of the pool or back to shallow water.
- Individuals are able to swim for long periods of time, become tired in water, and recover without having to touch the sides of the pool or the shallow bottom.
- They no longer think of water as sucking them under; instead, they have the feeling that water is supporting them.

- They no longer thrash or tear at water when swimming of moving about in it but move with definite purpose and relaxed movements as they press or pull gently against water with confidence and a feeling of complete control; no longer is there a fear of drowning or sinking as soon as motion stops.

- They are at ease with water and feel comfortable and relaxed in it.

- They are above situations at all times and know it but do not become over-confident or wreckless; they know to respect water and work with it rather than against it.

With the accomplishment of watermanship the second objective--elimination of danger caused by disorientation in deep water--is clearly within reach. Blind swimmers at this stage in aquatic training may still occasionally become disoriented. However, situations are different from beginning stages as an individual's life or personal safety are no longer at stake whenever one becomes lost in the pool. Since students no longer have to be concerned with such matters as where deep water begins or how many strokes may be taken safely before it is time to reach for the side of the pool, one can face each new situation confidently. A survival swim can be extremely enjoyable rather than a serious emergency. With complete control over situations, one can swim with head above water and listen for orientation cues whenever desired. The end result is usually less frequent occurrence of these problems.

The third objective with which we are concerned--elimination of danger of panic when a blind or partially sighted swimmer is thrown suddenly into an unexpected situation in water--also depends to a great degree upon watermanship. Practicing some typical situations with a partner can be helpful. However, this in no way results in the impact that an unexpected situation in water has on a person unable to stand up or reach for a gutter to rest until a problem is removed. Confidence can only be developed through practical experience. Unexpected situations do not necessarily imply a serious emergency. The simple problem of getting splashed in the face by another swimmer or by a wave just at the moment one is taking a breath may be enough to cause an inexperienced swimmer to panic. Because of the nature of a visual limitations, blind swimmers often become involved in many more of these situations than sighted swimmers. However, with relatively little practice an experienced blind swimmer can take such situations in stride and hardly think of them as surprise or unexpected situations.

Other problems which are a little more involved include underwater collisions with a wall of the pool or rising to the surface only to find another swimmer directly in one's path. Collisions with other swimmers are quite common and not limited to individuals with visual limitations. In any case, procedures are the same. First and most important, take control of the situation. Multiple drownings often occur because one person panics and sets off a chain-reaction of panic among other. Many potential drownings have been avoided by one swimmer taking control of a situation and calmly and confidently removing the problem. The smooth relaxed behavior of such

a person may remove most fear from inexperienced swimmers even in sudden and unexpected situations. This action often enables the individual to resist the urge to panic and thus eliminates or minimizes danger.

This discussion does not imply that because swimmers have the quality of watermanship they will never again become startled or shocked by surprise situations in water. The very nature of these experiences is often enough to shock even the most qualified swimmer briefly out of control of a situation. If one can experience a shocking occurrence, evaluate the problem, and immediately rise above the situation before panic sets in, that individual is truly qualified to go into advanced aquatics, including survival swimming.

Objectives of standard lifesaving courses such as those offered by the American National Red Cross are in many ways similar to objectives just discussed. In fact, in some areas they overlap. However, skills are different as to when and how they are used. Survival swimming as discussed in this book is related to water confidence or watermanship as opposed to surviving serious situations such as violent water accidents. Types of training recommended in this chapter are mainly to provide swimmers with maximum safety skills for the wide variety of aquatic activities presented in later chapters. These skills become a regular part of a swimmer's normal technique. Blind swimmers use these skills constantly although they are seldom aware of them as methods of survival.

Lifesaving skills, on the other hand, are not likely to be used daily or for recreational purposes. Instead, they are learned, thoroughly understood, and used only for emergency situations by people who are qualified. This in itself makes enrollment in a lifesaving course particularly important for blind and partially sighted persons.

Nobody willingly stands by and watches a friend or loved one become involved in a dangerous situation in water without trying to offer some type of help. Often individuals are untrained so that help offered is more harmful than good. Impaired, disabled, and handicapped swimmers are humans with emotions like anyone else. As such they are likely to be placed in situations where they must make immediate judgements regarding another person's safety. The problem of attempting a rescue is serious enough for a person with sight. Add blindness to the problem and dangers can be multiplied. However, blind individuals with adquate training have been known to make successful water rescues.

Major objectives in lifesaving are as follows:

- Teach personal safety.
- Teach thorough understanding of one's capabilities and limitations in water.
- Provide one with the ability to make appropriate judgements in case of emergency situations involving other swimmers so as to be able to do the right thing.

Obviously watermanship does much to enable one to attain these objectives. However, this is not the complete solution as there is no short cut in training

of this type. Enrollment in a standard lifesaving course, such as that offered by the American National Red Cross, is the only sound solution. Knowledge gained from the literature, discussions, and practical experiences in such courses cannot be separated. Knowledge, attitude, and experience must be melded as a unit if an individual is to be safe and qualified in this area.

Special Problems for Blind Persons in Lifesaving

On the basis of practical experience in standard lifesaving courses, a few problems have been noticed which are directly related to blindness. The first and most obvious has been discussed several times previously--orientation in water. As mentioned in preceeding sections, developing watermanship can do much to minimize this problem although it does not eliminate it completely.

Another problem which can be corrected with practice is the matter of depth perception. In an exercise involving throwing a ring buoy to a victim in the middle of a pool, it was possible for individuals without sight to learn to throw a buoy far enough into the pool to be of use to a victim. This was especially true when the buoy was thrown from a point somewhere above the victim, such as from the pool deck. However, when both were on the same level as in a ball-throwing exercise in which both persons treaded water, depth perception or accuracy in determining distance to one's partner was sharply diminished. Although accuracy in determining the degree of left or right remained stable. The volume of a sighted person's voice was often deceiving and without sight, it was difficult to avoid throwing a ball far beyond or far short of the mark.

Another value of a lifesaving course for blind persons was dramatically illustrated with the development of another problem--approaching a struggling victim. A qualified rescuer making a swimming rescue normally watches a victim and waits for the proper moment to make physical contact. Without sight this is impossible and a blind person may often find him/herself in the arms of a struggling victim. This immediately reflects on two basic objectives of lifesaving--know one's own limitations as well as abilities in water, and be able to make an appropriate judgement. If a blind swimmer finds him/herself in a situation where a swimming rescue is necessary and he/she feels capable of taking control of the situation once contact is make with the victim, the individual may choose to go ahead and attempt the rescue. However, even the most qualified persons in the area of lifesaving never attempt a swimming rescue unless there is no other practical or possible means.

Another skill in a standard lifesaving course which presents a problem to blind persons is approaching a victim from underwater. The normal technique is to swim toward a victim, keep an eye on him/her, and then when in close range, surface dive, open the eyes, and swim toward the victim from below the surface. Without sight, this technique must be modified. The approach is made on the surface; sound rather than visual observation must be the reference. When a rescuer feels close enough to take a line on the direction of the sound, make a surface dive. For personal protection, keep

the eyes closed and swim in the chosen direction with the arms spread in a swan-dive position. The victim can be detected by turbulence in the water. If a surface dive is taken within average range--six to eight feet of the victim--the arm span does not allow the rescuer to veer off far enough to miss the water turbulence caused by the struggling victim.

Students successfully completing a Red Cross Lifesaving Course are certified in lifesaving. These certificates carry with them definite responsibilities; merely going through the motions of taking a course does not guarantee certification. In a few cases certificates have been issued to blind persons but only after accomplishments of each individual were evaluated carefully by the individual, the instructor, and Red Cross officials. No certificate should ever be issued to a blind person with the assumption that he/she is qualified to be a pool lifeguard. Special problems discussed clearly indicate that this would be impractical. Persons who drown do not go down making noises to indicate where they are located!

A question which immediately arises is Why then should any blind person be certified in lifesaving? Although the answer should be obvious, it is not understood by all instructors. The answer is reflected in basic objectives of lifesaving. By enrolling in a lifesaving course, blind individuals are exposed to types of experiences which emphasize the importance of personal safety and one's ability to make wise judgements in times of emergency. Most importantly, it dramatically teaches limitations as well as abilities in water. If an individual masters skills and knowledge of a standard lifesaving course and is able to assist somebody in an appropriate way in a water emergency, this ability should be recognized. If no blind person could be certified, border-line individuals might feel that certification is only a formality and involve themselves in situations for which they are not suitably qualified. Because certification is a serious matter, blind persons who receive this recognition may more accurately evaluate their own qualities and limitations. If an individual is faced with a situation in which help is needed, one can be confident of being capable and qualified to do the right thing in a manner expected by the certifying agency.

Practical Application of Technique

Much has been said about the importance of safety in water and need for skills to insure personal safety and the safety of others. Final questions include exactly what and when does a blind person do?

As far as survival swimming is concerned, the highly technical skills are covered in detail in Red Cross courses. The most valuable quality for a blind swimmer as mentioned earlier is watermanship--the ability to be completely at ease in water and to maintain control of situations at all times. A water safe individual knows a variety of different swimming strokes so as to be able to switch from one stroke to the other when tiring. Techniques of drown-proofing and treading water should be mastered.

If an individual is unable to move out of the way of a rapidly approaching swimmer, he/she should be confident in any one or several surface diving techniques. When involved in a collision or mix-up just hang limp in the water. If an

individual does not struggle, the other person is not likely to struggle either. Assist the other swimmer to get under way again when needed.

When swimming underwater do not wait until completely out of air before making ascent. In this way, if contact is made with another swimmer, the individual is able to relax and move to one side or the other with time to spare before coming to the surface.

As far as lifesaving is concerned, a blind swimmer qualified in this area would more than likely offer services only to those in his/her immediate area or to those with whom one is directly involved in an activity. In a supervised swimming area, lifeguards are responsible for keeping the area safe. It is highly undesirable for <u>any</u> swimmer to leap into a dangerous situation and possibly interfere with rescue efforts of lifeguards. A blind swimmer with knowledge and proper training can be most effective by assisting swimmers or removing dangerous situations before they become large enough to require a lifeguard.

A situation in which lifesaving training may actually save the life of a blind swimmer or another person involves a violent collision in water. Often when a swimmer's stroke rhythm is stopped momentarily and a few mouthfuls of water are swallowed, one comes up struggling. A blind person may break the hold and possibly assist the swimmer until help arrives. In any case, skill and knowledge would certainly prevent a potential double drowning.

Since long distance swims in areas other than swimming pools should only be attempted with a partner, another lifesaving skill--the tired swimmer's carry--may be effectively applied when one partner tires. If the sighted partner is the tired victim, he/she provides visual instruction and direction and the blind swimmer does the strokes to bring them back safely.

There are numerous other situations in which lifesaving skills of blind swimmers may be effectively used. These situations are as varied as the aquatic activities people enjoy every day. As mentioned several times, much of the difficulty in getting people fully qualified for types of aquatic recreation in which they choose to participate revolves around attitudes. These not only include misunderstood interpretations of what survival swimming and lifesaving really are, or a living dangerously now and learning safety later philosophy, but involve attitudes of visually impaired individuals themselves.

In the case of blind persons it often becomes a matter of personal adjustment. Unless an individual is willing to accept blindness for what it is and face life realistically, she will probably have much difficulty in attaining skills that have been discussed. For totally blind persons, there is little question of how much they can see. Though some may resent being called blind, there is no doubt about useful vision.

For partially sighted individuals, the problem is more complicated as they must constantly face difficult situations in which they feel neither blind nor sighted. For example, many persons who have extremely good vision

with glasses cannot wear glasses in water and find themselves struggling since many of them are unable to see much more than light and color. Yet, they fake it as sighted persons. There is no place for this practice in water safety. In such situations it is better to learn methods used by totally blind persons to gain true confidence than to learn unreliable methods involving partial vision which may or may not be dependable in a given situation. Later on, when more dependable methods are thoroughly learned and understood, partial vision can be extremely useful as a supplement rather than being a crutch on which a student leans every time a problem arises. If one faces and conquers attitude problems and if safety techniques and procedures discussed in this chapter are firmly established, further exploration of the expanding field of aquatics is possible.

SMALL CRAFT SAFETY AND INSTRUCTION

Fear is the main source of superstition
and one of the main reasons of cruelty.
To conquer fear is the beginning of wisdom.
Bertrand Russell

Boating has long been and will probably always be a popular activity among individuals who enjoy water recreational activities. Because of various types of small craft used today, most every person interested in some form of water recreational activity should be able to find at least one type of enjoyable small craft activity. The tremendous increase in popularity of motor-boating is evident from the number of new marinas and yacht harbors with boat launching ramps springing up in waterfront areas. However, motor-boating and related activities are special categories in themselves. For the most part this chapter is concerned with non-motor driven small craft.

In addition to docks, loading ramps, and other special facilities for power boats, many waterfront resorts have facilities where canoes, rowboats, and other small craft can be rented. In summer camps conducted near water, aquatic programs almost always include canoeing, sailing, and rowing as well as usual swimming and water safety activities. These activities are just as meaningful and enjoyable for blind and partially sighted persons as they are for sighted individuals. While there are some specialized camps for impaired, disabled, or handicapped persons, they do not always provide opportunties for full participation and instruction in small craft activities.

During the relatively short time of most camp sessions--two to four weeks are common--some campers are simply introduced to various activities and allowed to try them. Campers with some experience in certain activities may be given opportunities to become a little more deeply involved. Unless a camp is intended specifically for individuals interested in aquatic activities, available time must be divided among hiking, campfire, crafts, and a number of other camp functions, including aquatics.

Other factors which add to difficulties in providing enough aquatic opportunities for impaired or disabled individuals include their swimming ability--or lack of it--and types of impairments, disabilities, or handicaps accepted into the program. While many programs in which these individuals participate are instructional in nature, major emphasis is on recreation. Many campers who participate in these programs come with the idea of having fun with everyone else although some are unable to swim a stroke. Others, because of severe multiple conditions, may never be able to swim in conventional or usual ways. However, with a few adaptations in equipment and technique, all campers regardless of type or degree of their conditions, can participate in someway with each other.

Extra wide canoes, rafts, and rowboats which do not sink and cannot be capsized easily have been extremely useful in programs involving individuals with severe multiple conditions. For some physically involved campers, unable to do much more than sit in a craft and go along for the ride, equipment of this type enables them to participate and enjoy

activities which otherwise would be highly impractical, if not impossible for them. However, for many individuals whose only impairment is blindness, the problem is a little different. Since they don't really need highly specialized equipment, and since opportunities to use standard equipment are not as likely to be available, many blind individuals simply lose interest. They often agree that boating is fun but only if they have a boat like the one in which they learned at camp. It is hoped that specialized equipment is always available for individuals who need it and that opportunities to use such equipment continues to increase. However, our major concern in this chapter is for blind or partially sighted persons who can benefit from using standard small craft.

Getting Aquainted with Small Craft

To handle a boat or canoe safely requires understanding and application of certain fundamentals and procedures which must be adhered to by everyone. In general, learning about canoes and rowboats is no different from learning about any other new equipment. For sighted persons, instruction based on visual demonstrations makes it possible to learn new concepts without significant difficulty. However, for a totally blind student, a whole new set of problems is presented. Without eyesight, a blind individual depends heavily on hearing and touch--auditory and tactile-kinesthetic input--to learn about the environment.

Canoes and rowboats are not usually found in places where blind persons can personally examine them. Therefore, an individual who is new to small craft activities may have to rely on what has been heard about canoes or boats; in fact, many may have no accurate concepts about these craft. Boating terminology such as bow, stern, gunnels, thwarts, and mainsail may have little or no meaning to an individual who has always been totally blind and has never handled a canoe, rowboat, or sailboat. Many individuals with no previous experience have neither concept nor mental image of size or shape of small craft. Because of this, instruction must be careful, detailed, and much given on an individual basis.

Generally speaking, teaching techniques for small craft instruction are no different than those outlined in the chapter on Who Teaches Aquatics and How. Descriptions of steps for teaching use of small craft to blind boaters make it evident that individuals teaching this activity must utilize clear, concise verbal descriptions and tactual demonstrations. The only significant difference between teaching approaches for swimming and small craft is that a new piece of equipment is being introduced. Concern and consideration are for both appropriate movements of the body and proper handling of the equipment.

Obviously, there are too many new things to think about if an individual is introduced to small craft during a casual boat ride. To one who has never riden in a small craft before, the boat seems unstable and likely to tip over at any moment. These circumstances make it difficult for anyone to concentrate on the fundamentals of handling a boat or canoe. Therefore, it is desirable and practical to give introductory instruction and orientation while the craft is on dry land. After this is accomplished, the student is ready to become familiar with the feel of the craft in water.

SMALL CRAFT INSTRUCTION

LEARNING TO ROW...Principles of handling the oars of a rowboat may be completely meaningless to an individual who has always been blind unless opportunities to examine the equipment have been provided. As shown above, the instructor is seated in the boat handling the oars while the blind oarsman stands in shallow water and tactually examines the end of an oar as it is taken through several complete cycles of the stroke. The second photograph illustrates how the instructor can position himself so that he can see the direction of the boat while, at the same time, give instructions to the student

CANOEING...The blind canoeist may sit in either the bow or stern. As shown above, the sighted partner sits in the stern to give directions and observe the technique of the blind canoeist.

Orientation on Land. Generally speaking one of the most effective methods of introducing a blind or partially sighted individual to canoeing or rowing is by providing opportunities to examine the craft tactually while it is on land. Of course, this depends upon the type of boat and the environment in which instruction is given. Small boat and canoe instruction is often given quite effectively in a swimming pool. These boats are usually light in weight and constructed of aluminum, fiberglass, or wood. If handled carefully, demonstrations can be given on pool deck without damage to craft or pool facility. However, with large rowboats and sailboats this procedure is not always possible. The weight of the craft plus added weight of an instructor and student moving about inside a craft may result in damage to the bottom of the boat. If instruction is given on a beach, this problem is not as serious. However, depending upon size and shape of a boat, it may be practical to set the boat in shallow water and allow a blind student to wade into the water and feel the boat while it is actually floating.

Advantages of preliminary instruction are significant to the blind person though seldom thought of by sighted individuals. Since the whole concept of boating may be completely new to a person who has always been blind, there is much to learn, new shapes with which to become familiar, and ideas the person never thought about previously. On pool deck or beach a blind student can learn the proper way to climb in and out of a boat without being concerned about tipping it over or causing it to rock. If a mistake is made the instructor can easily point out the proper method and not be worried about having to fish the student out of the water. The mental image a blind student forms of a craft is especially important. Success or failure in handling a craft depends greatly upon one's concept of the craft. This concept can be made accurate or highly confusing, depending upon type of instruction.

Many blind individuals have reported being introduced to new equipment by having someone move their hands or fingers quickly from one part to another. Technical names are spouted off without giving any relationship between one part and the part nearest to it. This frustrating experience for blind students is certainly not intentional on the part of instructors. Though those with sight seldom think of it, they automatically relate parts of a new piece of equipment with a quick scan of the eyes from one important part to the next. Instructors must spend time planning and thinking out teaching procedures before introducing concepts or techniques to blind students. Instructors need to recognize the learning process blind students go through when they are introduced to new concepts or techniques.

Unless an individual knows where a given object is located, there is little value in telling that a second object is to the right, in front of, or behind that first object. Proper orientation is not as difficult as it may be initially sound. One of the most effective methods of eliminating confusion caused when blind individuals are introduced to a new piece of equipment is simply to allow them to explore it in any way they wish. This may include walking around the craft, climbing in and out of it, locating any part which seems familiar, and then exploring from that point to relate other parts to it. Some individuals who have always been blind catch on

quite quickly while others who have never had opportunities to examine such objects take a little longer. However, there is no evidence which supports a belief that individuals who are slower to learn cannot be equally successful. Once an individual has formed some type of mental image of the craft, the instructor can go over it and point out proper names for various parts--gunnels, bow, stern, and thwarts.

Orientation to a craft on land has another distinct advantage for one who is blind. To handle a craft properly in water requires a thorough understanding of exactly what is being done. There is more to paddling or rowing than simply moving wooden handles back and forth. A sighted oarsman can see the ends of the oars and determine whether they are pressing against the water properly; a blind person only has two handles being held. While oar handles often have irregular shapes which enable an individual to know when an oar is cutting the water properly this may have little or no meaning unless one knows what the end of an oar looks like. Therefore, on land blind students can observe concepts which are impossible to observe in deep water. A student can sit in a craft and handle oars or paddles under the supervision of the instructor. The instructor can sit in the craft and work the oars as the student stands outside and feels what the blades or ends of the oars are doing.

The amount of detailed instruction necessary varies with each student. However, neither student nor instructor can take short cuts. If a step in the learning procedure is only assumed to be understood, it should be reviewed to make sure that nothing is left out. If an instructor makes a critical evaluation of the ability of a student and the student is honest and does not skip details simply to stay up with someone else in a class, learning is faster, safer, and there is less chance for confusion once instruction begins on the water.

Boating Safety and Instruction in the Water

Although boating is often a popular activity in summer camp programs, camping periods are often too short to allow thorough small craft instruction. Many severe, multiple involved individuals who may never be able to swim a stroke in the usual fashion have opportunities to experience and enjoy small craft activities. However, this is only possible and practical because special safety precautions are taken. Special equipment, life preservers, and careful supervision are essential.

Regular boating and canoeing activities necessitate no special equipment. Probably the most important requirement for participants in these programs is ability to swim. While life preservers should be available for each person in a boat, they are not the complete answer. Even with thorough knowledge of what to do and with complete confidence in water, a life preserver can indeed be extremely helpful, especially if one is injured during a water accident. However, for a non-swimmer or an individual who is afraid of water, a life preserver might be of little value. The sudden shock from being dumped into cold water or the feeling of being struck by an oar or the boat as it capsizes can cause an inexperienced victim to panic. Irregular thrashing and grasping in water may be enough

to offset the ability of a life preserver to help a victim keep the head above water.

Attitudes Toward Boating. Don't ever go out in a canoe! Canoes and small boats are dangerous! If you fool around with them long enough, sooner or later you will get killed! Comments such as these spring up constantly, and yet really have no sound bases. They are often started by individuals who have witnessed a serious and tragic boat accident or have heard of one from others. With comments such as these circulating, it is easy to see why opportunities for blind and partially sighted persons in these activities have been severely limited. If sighted persons are injured or drown each year, what can happen to individuals who cannot see?

Accidents are indeed unfortunate. Even more unfortunate are conditions under which accidents happen. Individuals with no knowledge of boating safety, people taking careless and reckless chances in unsafe water, and non-swimmers being tossed out of boats are a few of the obvious conditions. Unfortunately there has always been and probably will always be a tendency for a few individuals to get involved in something they know is wrong and extremely dangerous simply to show their courage so as to be able to boast of their experiences. Some never make it to the boasting stage. Even worse are those that spread this wreckless attitude to others who similarly show negative attitudes toward safety and safety instruction.

If proper attitudes toward safety are developed before an individual ever climbs into a boat or canoe, many inaccurate misbeliefs and misconceptions about these activities can be made to disappear. The best place to start is with the philosophy that no one should get involved with small craft activities until after learning to swim. The only exceptions are severely impaired persons who should not become involved either unless special precautions have been taken for them. Most, if not all of the above discussion holds true for everyone who enjoys boating; significance for visually impaired persons is even greater. A narrow escape for an individual with sight could easily be disaster for a person who is blind.

Water Instruction. Once instruction begins in water, need for knowledge of safety and for water confidence become dramatically evident. A small craft, especially a canoe, reacts to every movement an individual in it makes. Tilting, rocking, and bouncing seem much more violent to a beginner than to one with experience.

At this stage in the learning process instruction in a swimming pool is extremely valuable and practical: A student and instructor can sit in the craft in a pool and practice maneuvering, shift positions, notice reactions of the craft as they shift, and learn that they are in no danger even if someone makes a mistake and the craft capsizes. This in itself can be an exciting activity in the protective environment of a swimming pool; it can also be surrounded by many attitudes--most of them inaccurate and frightening!

The thought of a capsized boat is associated immediately with tragedy, drowning, accident, panic, and being trapped. Yet to be bounced off an inner tube in deep water or to be skimming along on water skis and suddenly take a spill at twenty-five miles per hour is considered fun! Individuals

skilled in swimming and lifesaving and who normally feel completely safe in water have expressed deep anxiety about tipping a canoe over in the protective environment of a swimming pool. Although a real boat upset often comes with little or no warning, the swimming pool offers an excellent environment to practice capsizing and rescuing maneuvers--even in slow motion. After being dumped out of a boat a few times in a pool, the only thing an individual is likely to lose is fear and misconceptions of the past. Beginners soon learn that unlike heavy motor driven boats, a canoe or rowboat does not sink, even when filled with water. They discover that these craft can become floatation devices which can save lives in emergencies.

Several new things need to be explored as a craft floats upside down on the surface of the water. Students can lose the fear of being trapped under a craft as they discover that they can crawl in and out of the craft and breathe air trapped inside. There is much more to this activity than the fun of doing something new and mysterious. In spite of repeated instructions to stay with a craft when it capsizes, many individuals cannot erase the attitude that an upside down boat is disaster so they invariably try to escape it. For blind or partially sighted individuals this can be especially dangerous. If an individual escapes the craft, one has no awareness of anything to return to for support and may also be struck by the craft if it should be tossed toward him/her in rough water.

There is no reason for anyone skilled in use of small craft to be in a situation where the craft has capsized. However, it can and sometimes does happen; so be prepared. The best possible preparation a blind person can have for these situations is thorough understanding of one's own abilities and confidence from knowing how to handle any situation which might arise. Although it might be easier in some situations to make sudden decisions with eyesight, a blind person must have confidence that what has been learned about small craft makes him/her as safe as a person with sight. While an individual should not go out in a boat with the idea that it is going to tip over, one should be concerned about capsizing than if riding an inner tube. By ridding oneself of fears and misconceptions surrounding small craft activities, an individual can be more relaxed and really enjoy boating.

Learning Fundamentals. Although safety fundamentals can be thoroughly learned and practiced in an enclosed swimming pool, these facilities are usually too restricted for actual paddling or rowing instruction. This instruction must normally be given in a place such as a lake where the activity is to be conducted. Basically the process of teaching blind persons to handle canoes or rowboats is no different than for sighted individuals. Adaptations are so slight that they may hardly be thought of as adaptations by many observers.

Assuming that blind students have thorough understanding and knowledge of safety procedures, the most critical point is making sure that each learns proper techniques for handling paddles or oars. The most practical and simplest method is for a sighted instructor to sit in the craft facing the blind student. In this way the instructor can observe the action and make corrections as needed. This also provides the instructor with an

excellent position for maneuvering the boat if uneven paddling or rowing causes them to drift off course. Occasionally counting rhythm of strokes is useful in keeping the craft moving smoothly.

Adaptations for Sailing. Sailing is probably a little more difficult than paddling or rowing--but it is equally as enjoyable. With proper adaptations and instruction, sailing is as practical for blind persons as any other small craft activities. The most obvious difference is in the manner of propelling the boat. When paddling or rowing, individuals can pretty well tell where they are going by the manner and direction in which water is pushed with paddles or oars. Sailing introduces a new and not always predictable factor--the wind.

Every participant in sailing--sighted or not--must have a thorough understanding of the principles of sailing. Although many of these principles are usually observed visually as they are discussed, each one can be explained with meaning to an individual who is blind through careful and clear descriptions. Small models can also be used. Effects that wind has on direction of a boat can be demonstrated clearly by sliding a small toy sailboat with a movable sail over a flat surface. Raised arrows can be used on this surface to indicate direction of the craft, wind, or water current.

Instruction in a small sailboat may begin by having a blind student get the feel of sailing by going along for the ride the first few times. Later on the student may take partial or full control of the tiller and mainsail with the instructor going along as a passenger to give instructions about direction. Even a one-person sailboat usually has enough room in the bow or the stern for passenger. As in rowing or canoeing, the instructor is positioned so as to be able to see the direction of the craft, observe, and instruct the student. If several boats are available, an advanced student may take a boat out alone with the instructor riding nearby in a separate craft to give instructions.

Special Problems for Blind Persons in Boating

It should be apparent now why a chapter in this book has been devoted to small craft safety and instruction for blind and partially sighted persons. Although participation in small craft activities has been hindered by misconceptions and poor attitudes surrounding these activities, it has been shown that with proper instruction, a blind or partially sighted individual has no worse time learning boating fundamentals than anyone else. In view of all that has been presented, only two areas require special attention for a blind person. The first and most obvious has popped up in discussions about other aquatic activities--orientation. The second is knowing what to do in a sudden emergency--such as properly falling from a craft when it is capsizing.

Since it is not recommended that anyone go out alone in a small craft, the orientation problem can be conquered simply by having a sighted individual accompany a blind person. This does not mean, however, that a blind person simply goes along for the ride and takes no part in maneuvering

the craft. In small craft activities, especially canoeing, each partner plays an important part in handling and steering the canoe. There are situations in which the sighted person paddles to make course corrections, and other situations in which commands are given to the blind person who makes corrective movements. Rowboating and sailing similarly require cooperative efforts from both partners. It only takes one pair of eyes to see where a craft should be going. Ability to direct the craft and keep it on the desired course requires physical ability and mental concentration. If both partners have knowledge of what should be done, and both have the physical ability to do it together, orientation and direction problems cease.

The only other problem to be considered for blind persons is the matter of safely falling from a canoe or boat in case of an upset. This is not a serious problem. Since blind persons cannot see when emergencies are about to occur, safely falling from a craft needs to be considered so that they do not find themselves in positions of being thrown out of control with the boat coming down on them. Problems arise in that people are instructed to stay with the craft; yet, in a sudden upset they may be thrown from it. If a blind person is only thrown a few inches from the craft, one may as well be miles from it unless he/she knows where it is. These problems are normally solved during preliminary training in a swimming pool or in shallow water.

While the following procedure is appropriate for anyone, blind persons must make it part of their safety training. As a boat begins to tip over--in slow motion at first--grab the lower gunnel, lean over close to it, and roll into the water with the craft. Before going under, take a breath and relax until the boat stops rolling. While still holding the gunnel with one hand, feel the position of the craft, and then calmly crawl out from underneath it. Avoid the urge to scramble out hastily; think out the situation and take each step deliberately and with purpose. If tossed to the high side of the boat during an upset and unable to get to the lower gunnel safely, grasp the nearer gunnel and roll with the craft as in the earlier description. However, this time lean toward the low side, crouch low, and lean toward the water to avoid being struck by the craft as it tips over. If there is a forward seat or thwart which can strike a person as the boat rolls over, grasp the seat or thwart with the free hand so that the position of the craft is known at all times--individuals need to know how to protect themselves from sudden impact with the craft.

Most fear connected with this problem is associated with being struck by the craft as it rolls over or being trapped underneath it. Once in the water, lack of eyesight is not really the problem that might be suspected. Since the individual has a hand on a gunnel, thwart, or both, one knows at all times where the craft is and can avoid being struck by it. Fear of being trapped underneath a capsized craft can only be eliminated with practice, preferably in a swimming pool.

Effective practice activity is to capsize a boat while sitting in the craft and holding firmly to a seat, thwart, or gunnel. Rather than trying to scramble out and get back to the surface as soon as possible, remain

seated as long as possible in a relaxed position in the upside down craft without feeling the urge to take another breath. After doing this a few times, it becomes evident that as long as an individual relaxes, there is more than enough time to crawl or swim out from underneath a capsized boat, even if temporarily delayed by another person crawling out.

As discussed in the previous chapter, ability to keep calm during surprise or unexpected situations may be all that is needed to prevent a drowning or double drowning. To prevent a surprise boat upset from turning to panic or disaster, takes control over the situation by at least one person--not eyesight. If both victims are in control, so much the better. In spite of all that has been said, much determination is needed to erase previous feelings about tipping over in a boat. Conscientious practice, in a swimming pool if possible, may be the quickest means to end this problem. Upside down or right side up a small craft is a flotation device that can save one's life if used properly. What better reason could one have for mastering safety habits and obtaining knowledge before going one step further.

Why Boating for Blind Persons?

In this chapter emphasis has been on small craft recreation as a practical activity for blind or partially sighted persons. The degree of acceptance of views presented will to a large extent be dependent upon attitudes of blind students as well as attitudes of individuals responsible for instructing or supervising visually limited persons. In many cases these activities are not encouraged for visually impaired individuals because of their lack of confidence or fear of water, or lack of understanding by instructors of the capabilities of blind persons.. Major objectives of this chapter have been to remove some of the mystique, mystery, and misconceptions surrounding this type of activity so that blind individuals may be able to experience full participation in boating, and think of it as more than simply going along for a ride with someone else.

If material in this chapter is accepted as practical, the next and most obvious question is, why boating for blind persons? Small craft recreation activities mean many things to anyone who participate in them. To a blind person who has been properly prepared as discussed in the early pages of this chapter, and who is not handicapped by fear of a boat or of water, success in small craft activities means another boost in self-confidence--the most valuable tool a blind person can have. It is not only satisfaction of knowing that one is participating in another activity like everyone else and doing a good job of it, but having confidence that spreads to other activities which one attempts. As an individual becomes thoroughly involved and gains skill in boating, blindness is still there; but no longer a cause for major concern. As one's confidence and attitude toward blindness continue to improve, a visual limitation no longer exists as something which must be hidden. Blindness is dealt with in proper perspective and actually slips into the background--forced there by all of the satisfying aspects of the activity.

Canoeing and boating themselves have many favorable things to offer blind persons. The peaceful environment while canoeing or rowing on a lake or stream is hard for anyone to dislike. Many sounds and smells seem to come alive as one really feels close to nature. Even the feeling of the ride is unlike any other experience. While a speed-boat ride provides another kind of thrill, it has disadvantages not present in non-powered small craft. While skimming along at high speeds, blind persons are not only without use of their eyes but noise of the motor blots out any value they may get from hearing. In many cases smells of nature are completely erased by the exhaust fumes from a motor. Though such a ride can be tremendously thrilling, it is often reduced to a sensation of zooming along with the feeling of a blast of wind and the spray of water against the face. Depending upon how rough the water, there may be only jouncing and bouncing as the boat skips over ripples and waves. However, motor-boating activities do have a great deal to offer; some of its values and contributions are discussed in the next chapter.

For individuals who from time to time prefer a less wild ride in a more relaxed environment, non-powered small craft offer a world of opportunity to relax and enjoy nature in an environment which cannot be described by words. It is a nature experience enjoyed by thousands each year--and certainly an experience a blind person in aquatics should not be denied.

WATER SKIING

> Do not too much regard bumps on the forehead, rough scratches or bloody noses; even these may have their good influences. At worst they affect only the bark and not the system-like the rust of inaction.
>
> Samuel Gridley Howe

Mention has been made several times that one of the most valuable and important qualities a blind person can have is self-confidence. In aquatics few activities enable an individual to develop this quality as quickly and dramatically as water skiing. This is not to imply that other aquatic activities are less effective. However, water skiing has a dramatic effect on an individual because of the nature of the activity itself. Whereas in swimming and boating, confidence and skill build gradually over a period of time, this is not usually the case in water skiing. It makes little difference how long a beginner struggles in water to get into a starting position, to keep clumsy skies on one's feet, or how many unsuccessful starts it takes before final success. During beginning stages little is done to build self-confidence. About the only thing that builds is curiosity about the activity and determination to make it somehow.

Everything builds to that one special moment when the tow-line tightens and the handlebar pulls hard against the fingers as a wall of water rises in front of the skier. However, this time instead of falling, skis cut through the water and the individual rises and suddenly is skimming along the surface at approximately twenty miles per hour. This is a thrilling moment and memorable experience for any beginner, impaired, disabled, handicapped or not. Regardless of how many future ski rides one takes, that first successful climb up out of the water is never forgotten.

This particular experience can be extremely valuable to a blind person. After all, skiing, motor-boats, and speed are generally assumed by most people to be included in a category of dangerous and daring activities usually not attempted by impaired, disabled, or handicapped individuals. To a blind person on his/her first successful water ski ride, it makes no difference whether one has skill, good form, or whether the individual staggers along with an urge to fall at any moment. The important thing is, now the individual is a skier; fine points can be polished up later.

As long as a blind person is introduced to water skiing with an attitude of safety first, the individual is probably in no more danger than anyone else. Actually the blind individual is probably much safer than many people in their daily lives. If water skiing can be so meaningful and beneficial to blind people, one wonders why it has not caught on sooner or been promoted more. General preconceived notions of fear and danger held by the general public have been major factors. Only because of open minded attitudes of a few special individuals has water skiing for blind persons gotten started. Since the early 1950's when water skiing began to gain popularity, stories concerning blind water skiers have popped up from time to time in newspapers across the country. These reports were at first, and are to some degree today, considered unusual.

In 1958 water skiing was the featured activity at a weekend camping trip held by an Oakland, California, Orientation Center for Blind Persons. Approximately thirty-five students and their friends attended--most participants were blind. Everyone who tried to water ski had the thrill of at least one successful ride. Individuals who could not handle skis got their exciting thrill ride on a circular planning board behind the boat. In the words of one student after his first successful water ski ride, "I may be blind but I'll never have to be afraid to try anything now." A similar trip was sponsored by the Orientation Center the following year and several one-day outings have been held since--all of these trips have resulted in the same type of success.

In recent years several centers for blind persons across the United States have offered water skiing for members who had developed watermanship and could meet certain safety requirements. Generally speaking though, opportunities for visually impaired persons to learn to water ski at specialized centers are limited. Each year more and more blind individuals are learning to ski during outings with sighted friends. Problems which arise in these settings that involve actual skiing techniques and procedures are not serious. Techniques and skills usually learned through visual observation can be handled with individual instruction on the shore or in shallow water.

As in any activity, safety first is a critical factor. If water skiing itself is truly safe, it should be as safe for blind as for sighted persons. Unfortunately, many people who water ski take short cuts and overlook details which cannot be overlooked by an individual without sight. Sometimes these individuals get away with it, but in many cases, they are the ones who have accidents. On water skiing excursions sponsored by recreation centers, judgements and decisions are usually made by persons who are qualified in water safety and know proper ways to handle power boats and water skiers. In informal settings this type and quality of supervision may or may not be present. Decisions and judgements should only be made by mature individuals who are capable of making appropriate decisions. Rules and procedures to be followed should be thoroughly understood by all skiers before the activity begins.

A list of essential safety practices is not overwhelming. Most do's and don'ts concerning safe water skiing seem so obviously right or wrong that they are often casually passed over and assumed to be understood by everyone. Unfortunately, assuming that they are understood is only one step from not putting them into practice at all. At this point water skiing becomes unsafe, especially for blind persons. Because of the importance of this subject, safety procedures and reasons for them are discussed in detail later in this chapter.

The Equipment and How it Works

To sighted persons about to learn to water ski, detailed descriptions of equipment and how each piece works are not usually necessary. By having watched others water ski, sighted beginners have some idea of what is expected by simply examining the equipment. However, water skiing and all

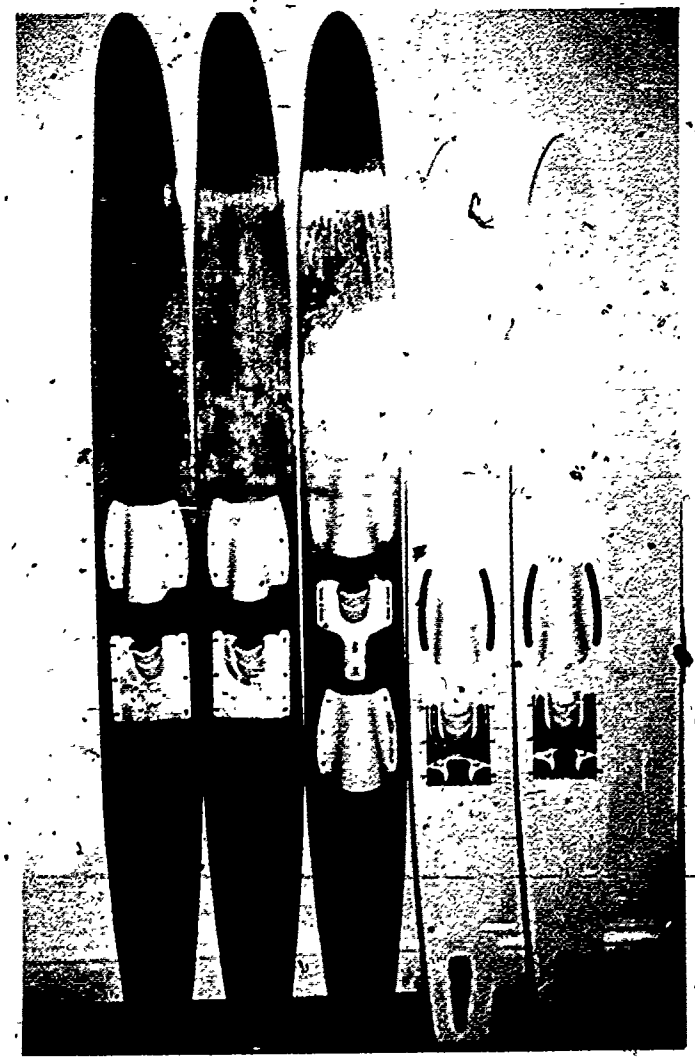
the terminology associated with it may be little more than words to an individual who has never been able to see. Because of the nature of water skiing, a blind person has no opportunity to observe techniques of handling equipment and, therefore, has to rely completely on what is told to him/her by others. Careful verbal descriptions and individual instruction are necessary. Much time can be saved and confusion avoided if a blind person is allowed to examine the equipment tactually before actual ski instruction begins. After an individual has been able to form mental concepts of such things as life preservers, skis, and tow-ropes, explanations of how each piece of equipment is used are much more meaningful. This is also an opportune time for a beginner to practice putting on skis, life jacket or belt, and to learn how to adjust each one properly.

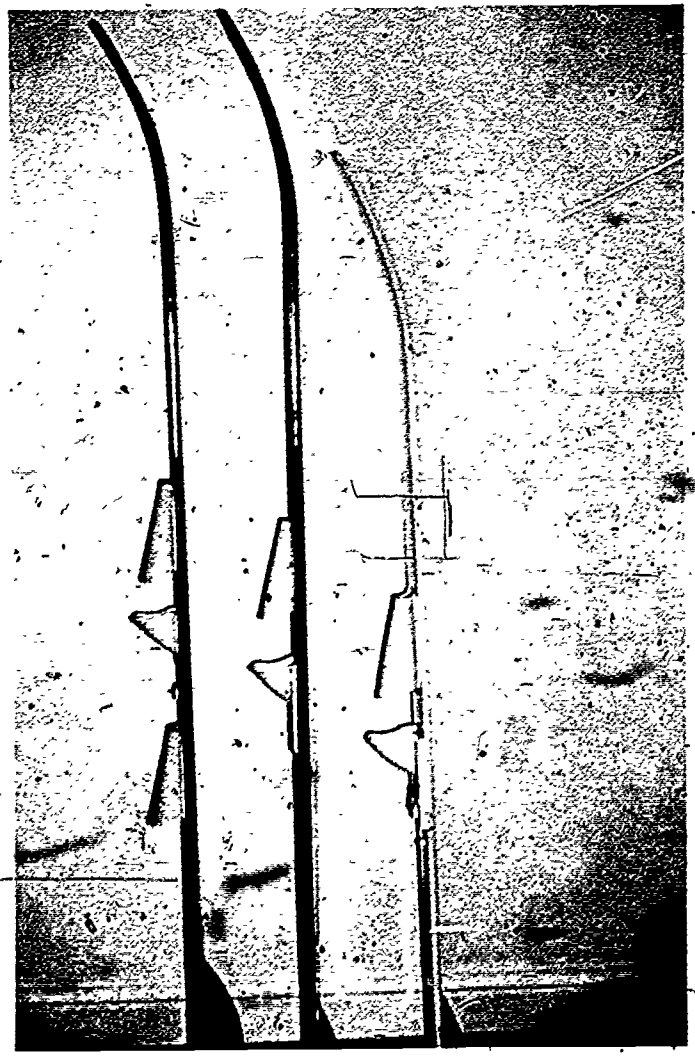
Skis. It is difficult to list all types of available skis since they are really a matter of choice. It is more meaningful to list various characteristics which must be considered in designing and choosing water skis--length, width, type of curve at the front end, thickness, taper or shaping, type of fin, and type and positioning of bindings or boots. With all of these features, one can conclude that there are probably as many styles of skis as skiers. Although no special type of ski is necessary for blind skiers, certain characteristics of water ski design are more favorable than others. However, as suggested earlier, it is not equipment that causes problems for blind persons in water skiing. Methods by which individuals are taught and ways in which proper safety precautions are observed or not observed create most problems for visually limited water skiers.

In general, most beginning adults do quite well with skis approximately five feet long, seven to eight inches wide, not too heavy, and with long shallow fins. These skis do not create as much drag or pull against a skier as those that are heavy or with deep fins. Whereas an advanced skier may prefer tail ends of skis to be rounded and tapered much as the shape of a heel, beginners are usually more stable on skis with squared off tail ends. Squared off tail ends and long fins do much to prevent skis from zig-zagging, especially during the starting phase as a skier is pulled up and begins to gain speed in the water. Many skis are now designed so that long edges running the length of the skis are beveled inward from the top surface toward the bottom, much in the same fashion as sides of a boat. This prevents the spray of water passing the skis, blasting against the feet, and causing irritation or discomfort.

In considering curve or bend at the front of skis, no special type is recommended for blind skiers. However, certain factors make skis with good noticeable curves more practical and easier to learn with than flatter skis. Skis with more abrupt curves over shorter distances--fifteen inches back from ski tip for instance--cut sharply when skis are pressed into the water at the front end while the individual is leaning to one side. A gradual curve does not react as quickly for sharp cutting or turning; it is also not as likely to zig-zag if a skier lets the front ends of skis touch the water while he/she is not standing straight. If a ski is laid on a flat surface such as a table, and tips are approximately four inches above the surface, these skis are quite satisfactory for a blind person to use in learning to ski. A major reason for suggesting this design is that an individual without sight is not aware of rough water until already in

Left photo (left to right) adult beginner skis, slalom ski, large adult skis...Right photo (left to right shows curves in ski tips and ski fins. Note squared off tail edges on beginner skis, and rounded edges on the others, also shallow fins on the deep fin on the slalom ski.





it. A ski with a shallow or low rise at the front end is more likely to dig into waves, trip the skier, and cause a forward fall. A ski with a higher more definite rise strikes the waves and rises above them.

Weight of skis is not usually as critical for beginners on doubles or two skis as for persons beginning on single or slalom skis. However, the lighter and less clumsy a pair of skis, the more likely success for a beginner. In using a single ski, one of the most critical factors for a successful start is keeping the ski from wobbling and zig-zagging out of proper direction during this phase. This problem is minimized if a ski is not too heavy. Proper ski weight, size, and shape depend upon a skier's ability to control movement with his/her legs.

Ski Tow-Ropes. Although there is an endless variety of handle designs on ski tow-ropes, there are basically two kinds of tow-lines--those with a single handlebar, often used when skiing on doubles or two skis, and those with two handles, usually used for the single or slalom ski. Some lines come equipped with interchangeable handles for both single and double handle grips; both types are often used for singles and doubles skiing. A double handled ski rope has one special advantage for a blind skier. When suddenly faced with choppy or rough water, a skier may pull unevenly or jerkily against the rope and create slack in the line; this can result in a spill. By spreading the hands apart with one handle in each hand, an individual can easily remove most of or all slack. One advantage of a single handled rope is that when a skier wishes to let go with one hand and pull hard against the rope to cut sharply over a wake, he/she is not suddenly faced with the problem of wondering what to do with the other handle.

The Life Preserver. The value of a life preserver for water skiers should be self-evident. Yet some careless individuals choose to disregard life preservers. Some non-swimmers have chosen to water ski without life preservers and never lived to tell about it! A safety feature built into water ski bindings is that during a spill skis fall off rather than causing strain or injury to an ankle or foot when there is resistance against the skis. A falling skier naturally lets go of the rope to avoid being dragged under water. A non-swimmer, suddenly in deep water with no means of support, more than likely would become panic-stricken and slip below the surface before anyone could return to pick him/her up. Whereas use of automobile seat belts is a matter of personal choice, laws in the most places require that all water skiers wear some type of approved life preserver. However, threat of a steep fine for violating this law should not be the motivating factor for observing it.

Three general types of life preservers are used in water skiing. Any of several types of Coast Guard approved vests or lifejackets can be used safely in water skiing. Water ski jackets fit much in the same way as a sweater or vest but are less bulky than standard life preservers. Water ski belts, usually made of a buoyant material such as styrofoam or foam rubber, fasten around a skier's waist. Vests or life jackets are required on board every boat for each person on board. Coast Guard approved, they are designed to keep the face of an unconscious victim above water. Water ski belts, though safe and approved for water skiing, do not meet Coast Guard standards for life preservers; it is possible to use a ski belt and float face down in water.

Although not a requirement, all persons who learn to water ski should know how to swim. Each year many individuals who cannot swim or who swim poorly learn to ski although it is obvious that they face additional problems. Although falling is simply part of water skiing, it can be a frightening experience for an individual who does not have confidence in water. Learning with fear can be extremely difficult and much pleasure of an activity lost.

The familiar problem of orientation and loss of direction in water faced by blind or partially sighted persons can only add to this fear. Without swimming ability, an individual must know without any doubt that a life preserver will hold the face above the surface of the water. One way to improve confidence in a life preserver for the benefit of inexperienced or non-swimmers is to be sure that they practice floating and swimming in shallow water before attempting to water ski. Vest life preservers or water ski jackets are recommended for inexperienced swimmers. If an individual chooses to wear a ski belt, it should be fitted carefully and checked to be sure that it cannot slip over the hips without being unfastened.

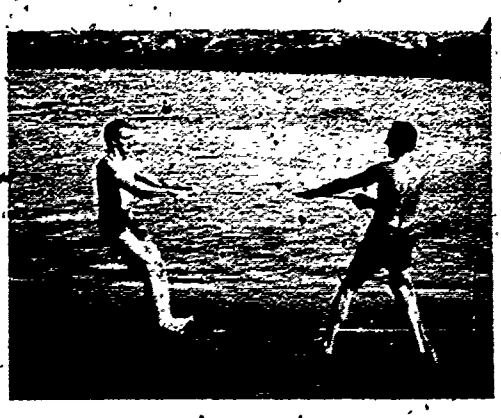
The Water Ski Start

One of the most difficult parts of learning to water ski is getting up onto the surface of the water. Conversely the best lesson one can have in water skiing is to make a successful start. Actually, fancy stunts performed by advanced skiers are more difficult. However, unless an individual is able to pass the critical period from standing motionless on shore or sitting still in the water through the acceleration phase to skiing speed, one will never be able to achieve any of the stunts later on. After experiencing at least one successful start on water skis, a beginner knows the feeling and attempts to attain that same feeling the following time. Although there are several variations, we are mainly concerned with two types of starts--the shallow water start and the deep water start.

The advantage of starting in shallow water is that a beginner can let the skis touch the lake or river bottom so as not to be rolled around by movement of the water. This is a more stable starting position as the boat pulls the individual away from shore and toward the skiing area. Furthermore, an instructor may walk along with the individual during the first few feet and assist in any way necessary. The only disadvantage to this type of start is that when a skier takes a spill in deep water, there is no shallow water from which to start again. In many cases, beginning skiers must be picked up by the boat and brought back to shallow water to start again.

On the other hand, an individual who knows how to make a deep water start is not limited. The only disadvantage of a deep water start becomes dramatically evident to a beginner on the first attempt. Skis are buoyant and have a tendency to pull in one direction; a life preserver is also buoyant and seems to pull in the opposite direction. Then there is the problem of keeping the skis on the feet and staying in a starting position while the boat operator swings the tow-rope around and attempts to bring it

THE SIMULATED START IN WATER SKIING



RISING OUT OF THE WATER...Whether practiced on dry land or against the scum gutter of a swimming pool, the instructor pulls on the ski tow rope as the skier braces his feet against an immovable object and pulls on the handle grips. The instructor may point out important steps along the way as the entire movement can be done in slow motion.

GETTING READY TO SKI...With the knowledge of what to do during the start, the beginner then practices putting on skis in deep water and attempts to remain in proper position and control his movements in the water. Then with the tow rope handles in his hands, he continues to maintain position as the instructor pulls him slowly through the water from one end or side of the pool to the other. A beginner who can keep skis in a steady position should be able to start behind a boat with no difficulty or false starts.

toward the skier. The rolling motion of the water adds to the confusion. In many cases a beginning skier becomes exhausted simply trying to get into starting position. Fortunately, this is only an introductory and temporary experience. With a little practice, a deep water start is hardly thought of as a problem.

Without sight, starting procedures can be extremely confusing as much of this learning is usually done through visual observation. Numerous unsuccessful starts are time-consuming and often test the limits of one's patience. Additional problems created by lack of eyesight can cause unnecessary disruption of activities if not considered properly. However, there is no real reason for this; with proper instruction and adapted methods, a blind skier need not take any more time to learn than anyone else. Occasionally beginning blind water skiers are successful on their very first attempts. This was the case for two individuals on the first water ski excursion held by the Orientation Center for the Blind mentioned earlier in this chapter. One of these first-time skiers was totally deaf as well as totally blind.

In a large group, more than one pair of skis and one life preserver are usually available. Instruction can be given on an individual basis to a blind skier in shallow water while others take turns behind the boat. Most beginners can initially benefit from learning to handle clumsy and awkward equipment in shallow water. This is especially meaningful to a blind person as many of the usually visually observed aspects of water skiing can be explained tactually and in slow motion.

Another extremely successful technique has been to practice fundamentals in a swimming pool. If a blind individual has enough advance notice of a water skiing outing and the individual can gain access to a facility with an instructor, basic water skiing fundamentals to the point of an actual start can be thoroughly learned and practiced in a swimming pool. This has several advantages. First, water in a pool is usually warmer and calmer than in a lake or other water skiing area. Second, the individual usually has control of the depth of water in which to work. The instructor and student can both stand in shallow water for practice or they can move to the deep end of the pool for deep water starts. Practice in putting on skis in deep water and maneuvering into position to pick up a tow-rope thrown by the instructor from the pool deck help the individual learn the usually time-consuming aspects of starting on water skis.

The Simulated Start. After a beginner has learned control of body and skis while floating in water, half the battle is won. However, as pointed out earlier, the critical phase in a water ski start is that moment of acceleration when the skier is suddenly pulled through the water and up onto the feet in a planing position on the surface. This phase of the start is not really difficult for a blind person. There is one possible exception and that is in knowing when an individual is in proper position or whether leaning too far forward or backward. As speed increases suddenly, a beginner soon learns whether the position is correct or not. At this point an individual either skims along the surface or takes a spill and has to reanalyze the situation. By the time this happens, the individual is more than likely too far away from the instructor or already in water that is too deep for the instructor to be able to assist.

One technique which has been used successfully in eliminating false starts, and is especially useful for beginning skiers who are blind, takes place either on dry land or at the edge of a swimming pool. To simulate a start on dry land, a beginner sits on the ground and faces the instructor with knees bent. Feet are then braced against an immovable object such as a log, stakes driven into the ground, or possibly the instructor's foot placed firmly on the ground sideways in front of the student. The student sits in the starting position and takes hold of the ski tow-rope handles while the instructor holds onto the rope a short way beyond the hand grip section. The instructor pulls on the rope as the student is lifted into the proper skiing position.

If this technique is practiced in a swimming pool, the beginner first puts on a water ski jacket or belt as in a real skiing situation. The student then sits in the water with feet against the scum gutter; the instructor stands on the pool deck and braces firmly. If the student floats away from the edge of the pool while reaching for the ski tow-rope in trying to get into position, this is added practice, as it is quite likely to happen in a real starting situation in deep water. When the skier is in position with feet on the scum gutter, the instructor pulls and lifts as in the dry land procedure just discussed. To avoid toppling into the pool, the instructor keeps the center of gravity low and pulls backward away from the pool rather than upward.

This technique, whether practiced on land or in water, has a distinct advantage over trying everything behind a boat the first time. The instructor can observe every movement a student makes in slow motion. Pull on the rope can be stopped at any time to point out mistakes. Similarly for the student, slow motion gives more time to think about what is happening and what should be done to maintain balance in assuming a proper skiing position. This technique is especially recommended for blind skiers as they are unable to observe others visually and imitate their actions.

To avoid starting too close to other swimmers or skiers in an area, a boat operator may drag a skier slowly through the water for some distance to make sure all is clear and safe before accelerating. Maintaining proper position during this phase of the start often requires a little practice, especially if waves or large ripples are in the water. This procedure can also be practiced in a swimming pool. As room allows, the instructor unravels as much of the full seventy-five feet of ski tow-rope as possible; seventy-five feet is the complete length of a standard swimming pool. The student enters the pool at the deep end and puts on skis after entering the water. The instructor then throws the tow-rope to the student, even if it is necessary for the student to maneuver around to catch up to the handles to take hold of them. With the skier at one end of the pool and in the starting position, the instructor takes the other end of the rope at the opposite end of the pool and pulls the skier through the water. The pull through the water may be slightly slower than an actual boat pulls in maneuvering for starting position. However, the two experiences are surprisingly similar and this practice is extremely valuable for a beginner, especially one who is blind or partially sighted. In the controlled environment of a swimming pool, the instructor has greater opportunity to point out factors which may be overlooked by blind persons. Emphasis can

be given to keeping the tow-rope between the skis, a necessity for a successful start, and to keeping the skis from spreading apart while trying to maintain the starting position just before accelerating.

The Blind Skier Behind the Boat

Few people question that all presented thus far in this chapter can be thoroughly understood and learned by a blind person. However, when it comes to actually skiing, attitudes again creep into the picture. At one end of the scale are individuals with extremely negative feelings. NO under any conditions; water skiing is extremely dangerous and should not be attempted by blind or partially sighted person! At the other end of the scale are individuals with extremely positive attitudes. Blindness in and of itself is really nothing more than lack of eyesight; if water skiing is possible and can be done safely, why not give it a try? Because of these positive and favorable attitudes, a chapter on water skiing is included in a book on aquatic recreation for blind participants.

Between the extreme feelings mentioned above are attitudes expressing various degrees of caution such as, "Yes, a blind person can ski, but only in restricted areas," or "Yes--maybe, but he must remain within the limits of the wake of the boat." If individuals who subscribe to these so called in-between attitudes feel that they would not have control of a situation beyond these conditions, then imposing such limitations is an example of wise judgement, not over-protection. However, water skiing need not be as limited for blind persons as may be first suspected. Here the first real departures from standard procedures appear. A few adaptations in procedures or techniques not only enable a blind person to ski as normally as anyone else, but presence of blind or partially sighted persons in regular water skiing excursions often result in safer and sounder practices by everyone involved. When sound safety habits are established and practiced by everyone, and everyone is familiar with water skiing in general, there is likely to be only one more source of trouble--communication or lack of it between boat pilot and observer.

It is not too unusual to see a boat skimming along with a skier frantically yelling and waving an arm in every direction. The observer sits in the boat with a puzzled look; hand and arm signals apparently mean little and the noise of the motor is too loud for anyone to hear the voice of the skier. The observer gets the attention of the boat pilot who turns around to see if there is a problem. Meanwhile the boat zips over the water at about twenty-five miles per hour with nobody really watching where it is going. Few people try this in an automobile on the highway; yet both situations are similarly dangerous.

Without eyesight, visual communication with boat pilot and observer is impossible and voice communication almost always ineffective above the roar of the motor. If not other system of communication was possible, blind or partially sighted skiers could be in extreme danger especially if a sudden emergency arose. Another skier, an approaching swimmer, driftwood or other debris floating in the path must be avoided. Fortunately other means of communication are quite practical and suitable for all skiers,

especially visually impaired individuals. Regardless of which method is selected, skier, boat pilot, and observer must be in complete agreement before the boat motor is started as to signals to be used.

Skiers should have a few simple hand signals which can be used when they wish to go slower, faster, or stop. Use of these signals is standard procedure and though there are variations, signals usually are as follows:

- Raise the hand with palm upward and flat--pick up speed.
- Slice across the throat with the edge of the hand--cut speed.
- Hold the hand up with the flat palm forward toward the boat--stop.

Commands from the Boat Operator. If a boat has a loud clear whistle or horn, actions of a skier can be directed by the pilot or boat operator. Commands should be simple so as to avoid confusion. Examples include:

- One blast--go left.
- Two blasts--go right.
- Three blasts--stay within the wake or rough water ahead.

Even these simple signals need further clarification so as to avoid confusion. As the boat turns left, a skier must swing slightly to the right to stay within the wake. Therefore, it must be understood by skier and pilot whether one blast on the horn, for example, means "I am turning the boat to the left," or "You--skier--go left."

Commands Given by the Skier. In some situations a boat whistle or horn may not be loud enough for an individual to hear while skiing seventy-five feet behind a boat. Some boat pilots prefer for skiers to give commands as to what is to be done. Blind or partially sighted skiers can take control of such situations with no increased risks.

Not knowing what is ahead in the surrounding area can make it impractical for a blind skier to direct the boat. However, accurate commands can be given as to what movements are planned. For example, if a skier chooses to swing out over the right wake, the individuals points first to him/herself and then off to the right. This means, "I want to go to the right." The skier waits approximately five seconds so that the observer can give the message to the boat operator. If the pilot feels the move is unsafe at that time, the power is cut before they are involved in any danger. However, if after the five-second wait, the boat is still moving along smoothly, the skier is free to make the maneuver.

This technique of communication, used alone or in combination with the horn signal method, is especially useful for an individual who has some experience on skis; those with little or no experience are not likely to be cutting back and forth across wakes. However, a beginner is usually better off using the horn system and letting the boat operator direct movements.

This way the skier can concentrate on staying up on skis and gaining control over them.

An example of how the horn system can be effectively combined with hand signals is illustrated in a situation in which a skier signals that he/she wants to go over the right wake. If it is not safe at that moment to do so, the pilot gives the horn signal which means stay within the wake rather than cutting power and making another start necessary.

Regardless of which system is used, never have so many commands as to cause confusion. The less complicated, the safer for everyone, and the more willing each individual is able to follow specific directions.

Skiing with a Partner. After an individual has gained control of skis, one may wish to try skiing with a partner. Naturally, one who skis with a blind person must be able to handle him/herself well on water skis. A blind individual is not able to avoid collisions with a partner who staggers or wavers out of control. Some extremely capable instructors prefer to ski right along with their students from the beginning and give instruction along the way. To a blind individual skiing with a partner can make an already thrilling experience much more enjoyable. Although a blind skier is relatively free to do just about anything while skiing alone, the individual must remember that he/she is without more than eyesight. The skier is unable to communicate with anyone except boat pilot and observer and this communication limited to essential commands. With the noise of wind, water, and boat motor, hearing is greatly reduced. Many sensations of water skiing, such as bouncing, rocking, and swaying, may become disorienting and in many cases similar to riding a long strung-out roller coaster. Without eyesight it is often difficult for individuals to know really where they are going or where they have been. This does not imply that water skiing should be any less enjoyable than other aquatic activities. It simply accounts for a little confusion from time to time.

When skiing with a partner such confusion disappears; suddenly other senses come back into play. Communication is significantly improved. Another pair of eyes is available to observe the entire area and to add visual communication with boat pilot and observer. Voice communication between skier and partner is now possible. Unless skiing into a strong wind, it is often quite comfortable to talk back and forth even though partners may be riding on opposite sides of a wake.

Visually impaired skiers can always be made aware of where they are going and of interesting points along the way. They can receive advice from partners as to whether it is safe to cross over wakes or whether to stay within the limits of the wake. The sighted partner should only give a go-ahead signal for maneuvers which are clearly within the capabilities of the pair. The sighted partner must at all times take full responsibility to avoid collisions with the blind skier, be able to evaluate the ability of the blind skier, and make judgements accordingly. Swinging wildly across a wake without any idea of how accurately one can maintain direction when given a command is extremely dangerous. However, if both skiers have complete control over their movements, it is safe and quite enjoyable to ski side by side outside the wake in smooth water as well as directly behind

the boat. When confronted with rough or choppy water, skiers should separate so that either can fall safely without getting in the way of the other.

It has been mentioned that skiing with a partner greatly improves communication during a ride. However, a partner is another person to be considered in the communication agreement before skiing begins. Both skiers must agree who is to give commands to the boat and when they will be given, especially the starting command.

All persons concerned must understand procedure to be followed if one skier falls. It is usually sound practice for the remaining skier to let go of the line and stay with the person who has fallen. This saves time in locating skis and getting in position for another start. It is also safer to have two people close together in the water than spread out where they may get in the way of other boats. The pilot can always circle around to protect two individuals when they are close together in the water. On the other hand, if both skiers are down in widely separated areas, it is impossible for the boat pilot to protect both of them at once.

The Starting Command. When getting ready for a start, major duties of an observer include being sure that the ski tow-rope does not have any snags or loops which can catch on the skier and seeing that the skier is in proper position. However, a start should not be initiated until the skier gives the command. In many cases the rolling motion of water or an uncomfortable or unbalanced starting position unnoticed by an observer can cause several false starts and much wasted time.

Another cause for confusion during a start is misunderstanding of a command given by a skier. At a distance of seventy-five feet from a boat, the voice of an individual who is bobbing in water can easily get lost when competing with sounds from boats. The starting command should be one which cannot be confused with any other command. One of the most commonly accepted commands used in water skiing for the start is Hit-it! This is effective because it is unmistakable with other commands which might be given. OK is often mistaken for No, wait! Go is easily heard as No. Whatever command is decided upon, a skier must realize that to people in a boat the sound of a voice is muffled and less distinct than at his/her end of the tow-line. To avoid confusion and a false start, yell starting commands loud and clear.

Variations in Water Skiing. Since discovery of water skiing many imaginitive people have designed and created all kinds of devices on which they can ride while being towed behind a boat. These range from simple boards which may plane the surface of the water to pairs of skis mounted on brackets with a seat for a rider. Some of these devices, just as water skis themselves, must be pulled through the water to remain on the surface. Others, such as water rafts, air mattresses, and large inner tubes, are buoyant and usually support body weight even when not in motion.

Some of this equipment necessitates special skills beyond those required for regular water skiing. Other devices are designed for individuals who normally may not be able to handle water skis. For beginners it is generally advisable to keep equipment as simple as possible. It is generally recommended to have the rider hold the tow-rope rather than having

the rope attached to a piece of equipment. However, if a tow-line is attached directly to a device as is usually the case with water sleds, the rider should be instructed to take a position which allows complete freedom if one falls off. In this way riders do not have to be concerned with the danger of being entangled in a bridle or tow-line.

This type of equipment should have as simple design as possible. There should be no excessive sharp corners, edges, or openings which can catch on a rider or part of a life preserver as one falls off a sled. For those who prefer slower smoother rides, floating type of equipment is recommended since there is no need to worry about building up a planing speed to stay on the surface.

Safety in Water Skiing

As pointed out earlier in this chapter, a list of essential safety precautions to make water skiing truly safe for blind participants is not overwhelming. Many points appear to be good common sense. If all of these safety precautions could be put into practice by all water skiers, there would be little reason for concern. However, as seemingly less important points are one by one neglected, water skiing becomes less safe. What seems to be an innocent and convenient short cut by an average skier can mean instant injury to a blind person. In considering the following discussion of safety precautions, the most important point to remember is that without eyesight there is no short cut to safety.

Safety in the Boat.

- Consider the safety of other swimmers or skiers near the boat before starting the engine when starting out from shore or in deep water. Choose a distance which you feel is absolutely safe and never start the motor if anyone is within that distance. Once the motor has started and its noise interferes with hearing, a blind person may not be warned in time to avoid being caught in the propeller of a motor.

- Always completely shut off the motor when assisting a skier into the boat in deep water. Sudden movements of water or rocking of a boat often cause an individual's legs or feet to drift underneath the boat in preparing to climb the boat ladder.

- Never attempt to pull water skiers when under the influence of alcohol. Operating a boat is no different from driving an automobile when it comes to drinking and driving. Towing water skiers involves constant decision-making with an alert mind.

- In motor-driven craft such as those usually used for water skiing, motors and gas tanks are often exposed and at times fumes from these tanks and motors can be dangerous. If equipment is kept in good working order and an open flame is not brought near such equipment, no problems should arise. Possibly the best policy to establish from the beginning is No Smoking.

While smoking habits are often quite careless anyway, a blind person can innocently place a cigarette near a gas tank without realizing it until it is too late!

Making the Start.

Before making a start on water skis, be sure of sound agreement among skier, observer, and boat pilot concerning signals and all other aspects of communication. Observers must realize that they serve an important purpose and are not simply along for rides.

Before notifying a skier of being ready for a starting command, pilots should be absolutely sure that all passengers are seated, holding on to something and are at least warned that you are about to start and speed up suddenly. It is not uncommon to hear of an unexpected start in which everyone on board is suddenly sprawled on the deck while trying to regain balance. Some individuals simply laugh this off as a comical incident, but serious accidents can result. A person unable to see follows a natural impulse to reach for something for support. With nothing but open space, a person can easily topple out of a boat and fall dangerously close to the propeller or into the path of a skier.

General Safety Habits.

Ski only in approved areas. Using areas not commonly known as water skiing areas invites trouble. Without sight, an individual is not able to dodge shallow areas or avoid tree trunks and other debris sticking up above the surface. In effect, the pilot is driving a seventy-five foot trailer with a cargo which is even more critical than the boat itself.

Avoid skiing close to shores or in excessive boat-and-skier traffic which increase dangers. Since many boats chop up water in every direction, skiing is not usually pleasant for anyone in these circumstances. Normally, there is enough water and free space for everyone if used with courtesy and with common sense.

Never ski without an observer in a boat--the pilot or boat operator does not count as an observer. Presence of an observer in a boat is required by law in most places where water skiing is done.

Ski only with individuals capable of taking charge of such activities and of making wise judgements and mature decisions. Special attention should be given to their attitudes toward safety.

Speed and Falling.

Avoid excessive speeds which are no more practical in water skiing than on highways. In either case one may get from one

point to another in a shorter time and look more daring in the process. However, this also increases dangers involved and chances of serious injury if an emergency arises.

Suggested speeds. For beginning skiers speeds of eighteen to twenty miles per hour are adequate. At these speeds an individual may fall forward, backward, or at practically any angle to the side with no problems. While an awkward fall may feel a little uncomfortable as a bad entry in diving, likelihood of injury is remote. A speed as slow as fifteen miles per hour may be sufficient to pull an extremely light or small skier up onto the surface. However, in most cases, even a light person will be much lower in the water than practical and plow through the water with much strain on the arms. As a skier gains confidence, speeds up to twenty-five miles per hour are safe and almost necessary when skiing on a single ski. At this speed an awkward fall can be painful. While a boat may maintain the same speed going into a turn, a skier at the end of a rope seventy-five feet away speeds-up significantly in a turn. This is especially true if the skier swings to the outside as the turn is initiated.

Swinging into a wide turn and feeling speed increase suddenly are enjoyable and thrilling. However, the boat operator should understand that without sight a skier is unaware of sudden wakes or ripples in the water which can cause a fall while a skier is in an extremely awkward position and traveling at increased speeds. A boat operator must always give careful consideration to the ski area, surrounding problems such as shores or other boats, conditions of the water, and speed the boat is traveling as well as the ability of the skier before giving the signal that all is clear to whip or swing out around a turn.

Most experienced skiers agree that the faster they travel, the harder the water seems during a fall. If a skier wishes to ski at speeds greater than those suggested or plans to experiment with whip turns in which speeds sharply increase for short intervals, wear protective covering such as a diver's wet suit to protect from the stinging sensation during an awkward fall. Falling is part of water skiing but need not be hazardous or unpleasant.

The Equipment.

The very nature of water skiing dictates that all equipment be kept in good condition at all times. Frayed or worn out life preservers or water ski belts must be replaced.

Deep cuts or scuffs in skis should be sanded off and repaired to avoid possibility of getting splinters from handling them.

The importance of keeping a boat and motor in good working order should be obvious. However, each year many potential ski rides end in disappointment because a malfunction develops in a boat or motor. Problems can be expected to develop from

time-to-time in anything mechanical. With proper care, mechanical breakdowns can be held to a minimum. Furthermore, a properly cared for boat and motor are much safer.

Summary

In this chapter water skiing has been shown to be a highly practical activity that can be extremely enjoyable for blind and partially sighted individuals. Heavy emphasis on safety is not to create an image that danger lurks around every turn and is just waiting for a chance to strike. If water skiing is truly a safe activity then it should be as safe for blind persons as for sighted individuals.

Is water skiing really safe? The answer depends completely upon attitudes and habits of participants. If proper safety habits are considered above everything else, the answer is a definite and emphatic yes. Since short cuts can be tempting, one may question the value of water skiing for blind and partially sighted persons. There is certainly enough evidence to support the philosophy of learning to water ski safely and refusing to take short cuts. A blind person can absolutely not take short cuts and knows it from the beginning. For many visually limited individuals, water skiing has been a thrilling and enjoyable experience that has been a significant turning point in their lives. These experiences have illustrated dramatically to them that blindness need not be a life-long handicap but instead something which they can conquer as long as they are willing to face the challenge.

SKIN AND SCUBA DIVING

> Far away there in the sunshine are my highest aspirations. I may not reach them but I can look up and see their beauty, believe in them, and try to follow where they lead.
>
> Louisa May Alcott

Swimming, exploring, and simply maneuvering about underwater have probably always aroused curiosity among individuals seeking adventure through aquatic activities. While swimming below the surface of the water with eyes open can be quite comfortable, use of a face mask enables an individual to see more clearly what is going on below the surface--the underwater world truly comes alive. A snorkel enables the individual to breathe comfortably while swimming with the face below the surface. The underwater view through the mask window is no longer disturbed by splashing and bubbling from breaking above the surface for a breath. With use of self-contained-underwater-breathing-apparatus--scuba--possibilities for underwater exploration seem limitless. The time a diver can remain below the surface is only limited by the amount of air in a tank and the rate at which air is comsumed. With scuba diving equipment a diver can go deeper and remain longer than possible in skin diving.

Quite often we are exposed to the beauty and excitement of skin and scuba diving through films and television. However, there is much more to skin and scuba diving than simply taking a supply of air and plunging into the deep. Besides the obvious danger of going too far for the amount of air that remains, inhaling compressed air while underwater, especially at great depths, has certain physical and chemical effects on the human body which must be thoroughly understood and calculated before attempting such a dive. It is not the aim of this chapter to discuss the physiology, physics, and chemistry of scuba diving. These subjects are much too complex to cover in a single chapter of a book of this type and should be learned only under careful instruction from qualified persons. This topic is mentioned again in the section on safety. In this chapter major concerns are skin and scuba diving as practical activities for blind and partially sighted persons. By concentrating on special problems faced by visually impaired participants in these activities, types of adaptations necessary for their success can be more fully understood.

Why Skin and Scuba for Blind Persons

Skin and scuba diving as practical activities for blind and partially sighted persons have probably never been given serious consideration on a large scale. Photographs, movies, and television programs featuring skin and scuba diving show that visual experiences are significant in these activities. Seeing the underwater world through the window of a diving mask is an undeniably beautiful and unforgetable experience. Yet other senses are also important in making skin and scuba diving so popular. This can be illustrated easily. If vision were the only means of enjoying skin and scuba diving, individuals could simply send color movie cameras down in diving bells and then view the underwater world on a screen without ever

being exposed to any of the underwater mysteries or potential hazards. Needless to say, skin and scuba diving would not be as popular if this were the case.

Maneuvering about underwater is unlike any other experience an individual has any place. While in an almost weightless condition a diver is free to move in any desired direction. Although voice communication below the surface is impossible without special equipment, the underwater world is filled with new and different sounds which are mysterious, exciting, and in general add to the pleasure of the activity. Blind divers can become so involved with the new environment that they often forget they cannot see it visually. By tactually examining rock formations, underwater plant life, or even the bottom itself, blind divers form mental images which can make the picture as real to them as to divers with sight.

In 1970 a group of blind Swedish scuba divers toured the United States with their instructor to give demonstrations of their prowess. These demonstrations showed that blind individuals can adapt readily to this sport as they are not as likely to panic in dark or murky waters and not as subject to fear of being trapped or closed in as sighted divers. The feasibility of open-water diving was also proved by the Swedish group. They were invited to recover lost articles from a sunken ship in the Black Sea and were rewarded with wine bottles over 2,000 years old.

Learning Skin and Scuba Diving without Sight

In the preceeding chapter mention was made that when water skiing began to gain popularity, reports of blind individuals attempting this activity were unusual. However, as time went on, the imagination of a few special individuals tempted them to introduce this activity to blind persons. Today water skiing has been proved to be a practical activity, a tremendous builder of self-confidence, and one more sport which blind persons can enjoy right along with their sighted friends. Skin and scuba diving similarly are going through the same stage that water skiing went through a few years ago. Both activity areas seem obviously sight-oriented and have potential dangers which can be very real if a participant is not cautious. The success of the blind scuba diving group from Sweden is only one example of the importance of open-minded individuals who are willing to explore new ideas to broaden opportunities for blind persons.

In the United States instruction in skin and scuba diving is offered to some blind individuals who have passed specific swimming tests and met requirements set forth at special recreation centers. Since the number of these locations is limited, it seems apparent that if blind persons are to become involved in these activities, many will have to enroll in standard classes sponsored by private organizations or in classes offered in schools and colleges. Blind students enrolled in schools where such classes are offered will do well to take skin and scuba diving when there is an opportunity. Blind students can benefit doubly from enrolling in a skin and scuba diving courses. Physical education credit can be earned toward degrees or graduation while at the same time new and exciting aquatic activities are learned.

Skin and scuba diving courses taught completely or almost completely in swimming pools are non-certified courses. Still, they are extremely valuable as they allow students to learn skills under complete supervision in controlled environments. They also allow students to determine whether they wish to go into the activity before facing expenses of a certified private course.

The Certified Course. For an individual who chooses to go into scuba diving seriously and uses personal equipment, a certified course is a necessity. In most potential scuba diving areas, especially cities or towns located near the ocean or other open water, it is impossible to purchase air for scuba diving tanks unless the diver is certified. To be certified, an individual must enroll in a course which includes experience in open water or ocean dives. These kinds of dives are not usually included in introductory courses offered through regular physical education curricula in schools and colleges. The value of being certified should mean more to the individual than just a means of being legally able to get air for tanks. It is just common sense that an individual who intends to make deep-water dives should learn to do so in the proper way and with professional instruction.

The Non-certified Course. Generally speaking, instructors who offer skin and scuba diving to blind persons at special recreation centers are accustomed to working with this population so there are few if any significant problems they cannot solve. On the other hand, when a blind student enrolls in a standard skin and scuba diving class, such as ones offered in schools and colleges, the situation is quite different. This is not only a new and different experience for the student but may also be the first time the instructor has ever had to teach a blind student in a class of sighted individuals. Demand for places in such classes is extremely high so that a blind student must be prepared to help the instructor overcome some problems that may be caused by the student's blindness. The attitude of Here I am--teach me may work in some classes but there is no place for it here. Quite often instructors in academic courses with little or no experience with impaired, disabled, or handicapped persons become alarmed when they suddenly discover a blind student in a class. After a period of wondering What do I do now?, student and instructor usually work out solutions to problems or the student is transferred to a class in which the instructor has had experience in working with blind persons. In a skin and scuba diving class an instructor more than likely has not had experience with blind persons. If the student is not properly prepared and willing to help solve problems, this student may be refused admittance to the class on the grounds that there is too much demand for the course and not enough time to deal with these special problems.

Since most problems likely to arise are associated with standard classes--as opposed to specialized skin and scuba diving classes offered at recreation centers--the following discussion is concerned with types of problems and situations which come up in typical college skin and scuba diving classes. All techniques discussed in this chapter have been tested and proved successful in an actual class in which a blind student enrolled along with sighted classmates. Upon conclusion of the course, instructor, blind student, and other students in the class decided that this activity

is indeed practical for blind and partially sighted persons. When time is taken to prepare blind students adequately, their participation in these courses in no way disrupts activities or hinders progress of others.

Preparing for the Class. Practically every skin and scuba course begins with some type of swimming test. This is done so that the instructor can determine which students need work in swimming or if some students are not qualified to take the course. These tests vary from swimming a set number of lengths in a pool to continuous swimming for one-half hour or more. Therefore, the first and most important means of preparing for the course is to develop watermanship which has been discussed several times in previous chapters. Before deciding to sign up for a skin and scuba course, blind individuals should practice and master several strokes so that they can switch from one stroke to another when tired.

Ability to swim underwater and adjust to being down in deep water so as not to be bothered by increased water pressure must be developed. Although this ability is not related to visual limitations, it can become a problem for blind divers. Blindness causes enough problems later on so that if students are to have fair chances of staying up with classes, they must do everything possible to eliminate as many problems as possible both before and during classes. Blind students should learn to feel as much in control of situations when swimming below the surface as when swimming normally.

The next step in preparing for a course is getting to know the instructor. Realizing that physical education instructors may have little or no previous experience in working with blind persons, the student will do well to take time to meet with the instructor. In this way the student can make known the intent to take the course and discuss types of problems and situations which can be worked out ahead of time. The instructor should give instructions with clear meaningful verbal descriptions as described for other aquatic activities. However, an instructor may not be accustomed to doing this unless one has worked with blind students previously. Instructors should be reminded to say what they are doing as they are doing it. They should also mention any equipment that is being used rather than saying such things as This gets attached over here and strapped on over here. This minor adaptation in teaching technique does not disrupt a class or make teaching any less easy for an instructor. On the basis of use in other classes, instructors have reported that learning to say what they are doing while doing it, rather than simply doing it, has made them more effective in their teaching.

Adapted methods of study and handling class assignments become normal and natural procedures for blind college students. However, these techniques may be completely new to an instructor who has never had a blind student in a class. An instructor should be interested in knowing how a blind student would handle such matters as examinations, reading assignments, special projects, and other class work. The decision as to whether class assignments will be handled in Braille, orally, by tape recordings, through typewriting, or by other means must be agreed upon by student and instructor. Such agreements are usually based on which adapted methods a

blind student knows best and how easily the instructor can work out details of a particular method so that the student can accomplish the greatest amount with minimum expenditures of special effort and additional time.

Another important step in preparing to take a skin and scuba diving course is related to handling reading material. There is much more to learning skin and scuba diving than putting on the equipment and beginning. Regardless of whether a blind student chooses to work with a sighted reader, use Braille notes, listen to tape recordings, or use some other means, written material must be studied. Whenever possible, a blind student should obtain textbooks and other written materials beforehand so that these can be sent out to be tape recorded or the student can do advance studying with a sighted reader.

One last suggestion for preparing to take a course of this type involves getting with an instructor or someone else who understands the equipment to have a chance to examine regulators, tanks, masks, and snorkels tactually before class begins. In this way a blind student is able to visualize mentally the equipment as the instructor presents it to the whole class.

Special Problems in Skin Diving. Learning to breathe through a snorkel with the face submerged in water, as well as adjusting to other equipment used in skin diving, are not significantly different for a blind person than for anyone else. Possibly the only exception is that with the ears in the water, voice communication is reduced significantly. Three general problem areas should be considered at this time--allowing for overhead obstacles during ascent, avoiding violent collisions in the pool, and water orientation.

Unlike scuba diving in which a diver may remain below the surface for extended periods of time, a skin diver takes one breath at the surface, submerges for a dive, and then when in need of air returns to the surface. Although numerous maneuvers can be used to teach skin divers how long to stay down before returning to the surface for air, blind skin divers must allow additional margins of safety. Whereas sighted divers can see above them and make a direct line for the surface, blind divers must allow for possibilities of other swimmers or obstacles being above them as they come up for air. If a diver has waited too long and is desparately in need of air, one can be in serious trouble or panic if feeling trapped below the surface. By learning to ascend when in need of air but still feeling comfortable, an individual can bump lightly against an overhead obstacle and still have enough time to maneuver safely around it before approaching the surface.

The problem of violent collisions is most critical during early stages of a course and until the student becomes familiar with the new equipment. Yet, violent collisions are always a potential threat and must be considered at all times. In the chapter on Swimming: The Foundation for Water Confidence and Safety, this problem is discussed as related to recreational swimming. With new and different equipment, which takes time to adjust to and understand, this problem is even more critical. Most beginners agree that the first few times they put on swim fins, their feet feel sluggish

and clumsy. As soon as they begin to use fins, they suddenly realize that even with a smooth and easy stroke their speed through water is dramatically increased. A head-on collision with the wall of a pool or with another swimmer at this speed can result in serious injury. Therefore, is is advisable to swim with caution, especially when near walls, and always use a stroke in which the hands are the leading parts of the body.

The problem of maintaining orientation in water has been discussed previously. The significance of orientation in skin diving is greater than in other aquatic activities. Since it is always advisable to skin or scuba dive with a partner, there is not as much concern over knowing whether one is going left, right, or straight ahead. Tapping the left or right shoulder of a blind swimmer or using a certain number of taps for each direction are bases for effective and simple communication systems. Another means for eliminating this problem is for the blind swimmer to touch lightly either the trunk or back of the sighted partner and follow along using the feet for propulsion. The free hand is kept forward of the head for safety and can be used in a modified stroke for additional speed. This hand is also free for exploring. The real orientation problem which demands special consideration during skin diving is knowing which way to go to get back to the surface.

Unlike recreational swimming, presence of skin diving equipment--mainly fins, mask, and snorkel--often give a diver the sensation of being suspended in space. The face mask keeps water out of the eyes and nose so that the diver feels comfortable whether facing upward, downward, or at any angle in between. The wide surface of swim fins provides much resistance against the water so that the usual tendency to drop the feet below the body is greatly reduced or completely eliminated. Because of this resistance against the legs and feet, it is entirely possible to swim straight down toward the bottom and feel as comfortable as when swimming upward or horizontally. Beginning skin divers with sight often express this same difficulty until they become familiar with the equipment and the sensations involved. Without visual cues for orientation, this problem can become even more of a nuisance to a blind person. In either case--visually limited or sighted--this problem is temporary. Several approaches can be used to solve this problem; all should be tried and tested before attempting a dive in deep water.

One method involves slowly blowing bubbles and feeling around the head with the hands to determine which way the bubbles are moving. Then swim toward the bubbles as they go directly toward the surface. Another method requires swimming at odd angles to the vertical or horizontal. Suddenly tuck the knees to the chest as in doing a ball or turtle float. By bringing the feet in toward the body, the heavy resistance against the fins is cut to a minimum and the feet drop to the under side though slower than without fins. As soon as the feet swing around and indicate which way is down, raise the head and swim toward the surface.

One more method of maintaining orientation to the vertical involves making a simple device which only requires use of a tiny cork, a short piece of string, about five inches long, and a rubber band. Run the string through the cork and tie a knot at one end to prevent the string from

pulling all the way through the cork. Tie the other end of the string to the rubber band which is large enough to fit loosely around the wrist of the swimmer. Regardless of the angle of the swimmer, the cork always points toward the surface. This device is small, light in weight, and in no way interferes with underwater maneuvering and exploration.

All of these methods of determining direction below the surface seem obvious now but when a diver is suddenly striken with the realization of being lost and running out of air, one often overlooks the most obvious cues which may help. A blind skin diving student should try all of these methods plus any others an instructor may suggest. Practice all of them until the most meaningful and practical ones are learned. Finally, practice the favorite methods over and over until they are automatic. If vertical orientation is temporarily lost later on, a diver's method of regaining it should already be in use before the individual ever thinks of the possibility of being in trouble.

Problems in Scuba Diving. Several special and unique problems associated with scuba diving increase as the activity moves from the protective environment of a swimming pool to open water. All of these problems are directly related to one major problem--communication. The blind Swedish scuba divers mentioned earlier in this chapter communicated with their instructor by radio. This seems to be an obvious and effective means of solving the problem. However, specialized audio-communication equipment for underwater work is expensive and not always available, especially in typical school or college skin and scuba diving classes. In some modern pools where skin and scuba diving courses are taught, instructors can view classes through underwater windows and speak to students through an underwater sound system built into the pool. Another method involves hanging a metal pipe into the pool and tapping simple instructions to students underwater. Sounds of a metal object striking against a pipe carry throughout a pool. Regardless of methods used, practically all scuba diving classes use a buddy system in which students work most practice drills in groups of two. While one partner is working underwater, the other partner watches and stays in communication with the instructor. In open-water dives, need for a partner is especially important. Without someone present to warn of sharp objects or other approaching dangers, especially unexpected ones, a lone blind diver would be in serious trouble.

Simple messages such as, Let's go up, Let's stay here, Let's go deeper, can be written in Braille on small sheets of plastic Brailling paper. These same messages can be painted on the sheets in waterproof paint or ink. Water does not affect plastic so the Braille dots are not damaged when wet. A blind diver can fasten a group of these messages together in booklet form and attach them to a shoulder strap. To communicate with a partner, the diver locates the appropriate message by reading the Braille and then hands it to the partner who reads the message in print. Similarly the sighted partner can choose a message written in print and hand it to the blind diver who reads the message in Braille. Communication in this way is still somewhat limited but allows more flexibility than simply memorizing a series of taps on the body.

Other problems which are likely to occur in scuba diving can be simulated in a swimming pool. In case of malfunctioning equipment, the value

of a buddy system is again illustrated. Unlike shallow water swimming in which a diver need only lift the head above the surface when in trouble, partner teams practice in deep water and adapt to emergency situations without coming to the surface for help. Buddy breathing is a technique in which both partners share the same breathing apparatus while repairing or examining defective equipment at the bottom of the pool. These practice maneuvers present no significant problems to blind divers except that without radio equipment, communication is limited. The sighted partner can show the defective equipment to the blind diver by placing his/her hands on parts which are apparently broken. With a thorough understanding of the equipment, it is possible to communicate part of the problem to a blind diver.

Without specialized equipment, reading clocks, pressure gauges, and similar devices must be done by the sighted partner. Although most problems in scuba diving can be related to each other, generally speaking they can be divided into three major groups: aspects of the activity which require eyesight, problems associated with communication, and problems related to the effects of the underwater environment on a diver. Difficult and confusing as these problems may at first seem, all can be solved completely or reduced to a bare minimum with a few simple adaptations and by preparing adequately.

Situations which require eyesight are handled by simply using the buddy system. This is standard procedure and strongly recommended for all divers—visually limited or not. The sighted partner can take charge of all aspects of the activity which demand eyesight. Safe and practical scuba diving is a cooperative effort for any buddy team. Giving visual responsibilities to a sighted partner is certainly practical and not a liability to one's ability to function underwater.

In the absence of radio equipment, communication problems can be handled by deciding whether message cards or one of the signal systems mentioned earlier is to be used. The system selected must be practiced so that partners become familiar with procedures before diving begins in deep water. There can be no doubt on the part of either partner as to what a signal means. A communication mix-up in deep water can create a situation in which it is too late to remove potential danger by the time two divers discover the message each is trying to convey.

Problems related to the swimmer and the underwater environment can only be solved by adequate preparation and acquisition of watermanship. The greatest danger in this area is panic which can be caused by any number of unexpected situations. A swimmer who has developed watermanship is in control of situations at all times and does not allow unusual or unexpected occurrences or sensations to create panic.

Practical Assignments. During a course in which ideas presented in this chapter were put to the test, the instructor demonstrated tremendous creative talent and imagination. In less than one hour before one meeting of the class, he turned an entire college pool into a simulated underwater environment. Floats were scattered about the surface of the pool and large heavy weights lowered to the bottom. Guidelines were stretched at

various angles from floats to weights. Pipes, bamboo poles, and other obstacles were attached to the lines; some dangled freely in the water while others were fixed securely to lines. Long strings with many plastic pennant flags were attached to obstacles in various places throughout the pool. A large metal frame cage normally used as a water polo goal was also lowered to the bottom of the pool.

A skin diving assignment consisted of swimming in, about, and around obstacles, sometimes over a prescribed route and other times in any manner in which the swimmer desired. Space between obstacles often became small and required precise and delicate movements. The long streamers with pennant flags often whipped and wrapped themselves around swimmers' ankles and arms much in the same manner as seaweed. Students were constantly faced with the problem of making decisions as to whether they should go around another obstacle or come to the surface for more air. This was especially true in an assignment which involved swimming underneath and through the water polo cage. Snorkels often became entangled in obstacles which pulled divers' masks away from their faces and caused water to rush in under the masks. This meant that divers once again had to go through the procedure of clearing their masks; this is good practice for any skin diver. Once free from underwater obstacles, there was always the possibility of coming up underneath one of the small rowboats floating in the pool.

Without sight, the only practical approach to maneuvering in this confined environment was to touch lightly the trunk of the sighted partner who did all directing through the obstacle course. The only signal used, two taps on the back of the sighted partner, meant come up for air. Though moving through all obstacles set up throughout the swimming pool was a little awkward, all assignments were completed successfully.

Upon the conclusion of this class section, most students felt that the entire experience had been extremely realistic. One student jokingly commented that only ice cold water and a few sharks were missing. Dangling strings of pennants were reported by most students as extremely accurate imitations of seaweed since both had exactly the same effects upon swimmers. Individuals who moved through them slowly and smoothly had no difficulties. However, those who struggled or made violent movements through the water caused the strings to whip and found personal motions restricted by flags wrapped around their ankles or arms.

During another class session, still another creative and effective approach was used to teach students the amount of time they could safely spend underwater on one breath. Ten large metal washers were randomly placed from one end of the pool to the other along the bottom of each swimming lane. Each swimmer was given an open turn-buckle, asked to dive to the bottom, and then swim along picking up only as many washers as could safely be put on the turn-buckle while still having enough time to screw down the open end tightly before coming up for air. Temptation to try for all ten washers caused many students to come scrambling to the surface with an open turn-buckle. This dramatically convinced them that they had over estimated the amount of time they could spend below the surface on one breath.

Without sight this assignment required only slight adaptations. The blind student was told that all washers were placed on the inlaid tile stripe on the bottom of the pool. One hand was used to search for washers along the stripe while the other hand was used to hold the turn-buckle. With swim fins, the feet provided adequate propulsion through the water. Other skin diving exercises, as well as typical scuba diving practice drills conducted in standard classes, are practical for blind and partially sighted students and, as in those cases mentioned, require little or no adaptation.

Summary

From the very nature of these activities, it should be evident that there is no short cut to safety in skin and scuba diving. Ev[illegible] of skin and scuba diving, including written materials and calc[illegible] quires careful study and understanding; only with professional instruction can they be learned properly. Unlike mistakes on school mathematics tests which may result in poor grades, careless mistakes in skin and scuba diving can be fatal. The purpose of this chapter has been to point out adaptations necessary for blind or partially sighted persons to participate in skin and scuba diving. With knowledge and an attitude that it can be done safely, and with careful consideration given to those aspects of the activities which require some adaptations or modifications, a blind person is ready to participate in a standard instructional program.

One means of preparing for a course is to become familiar with some of the equipment before actual instruction begins. However, this does not mean going down in deep water with a friend simply because an individual has had previous diving experience. Such practice is extremely dangerous as even an experienced diver may not be prepared to handle a new diver who suddenly becomes panic-striken by a new and unexpected experience for which preparation has not been adequate. Skin and scuba courses are designed to introduce newcomers step by step to usual problem situations in an environment where mistakes caused by inexperience are not as critical.

Upon completing the course, each student knows exact safety precautions which apply to every phase of the activity. One additional rule may be followed which is advisable for all divers but especially important to blind divers due to problems in communication below the surface--never attempt anything which you and your partner cannot be in complete control of at all times. Spend enough time to plan each dive thoroughly and leave out no details. Make sure you have enough communication signals or messages to cover all possible situations expected in the dive and be sure to have adequate signals or message cards for emergency situations.

Now we have additional aquatic activities normally thought of as visual sports to think about as possible, practical, and extremely enjoyable for blind and partially sighted persons. Skin and scuba diving are probably the most critical of all activities discussed in this book from a safety standpoint; therefore they are NOT recommended for anyone who chooses to take short cuts to safety. With common sense, sound safety habits, and proper preparation, skin and scuba diving can open doors to thrilling experiences, enjoyment, and unlimited adventure in the world underwater.

RECREATIONAL SWIMMING AND WATER GAMES

Life's prizes are not won by those who are endowed with nature's gifts--they are won by those with a will to win.

If one word were selected as most important single word in this entire book, it would have to be watermanship. Its value has been emphasized not only for general safety in water but as one of the most important qualities a blind swimmer can possess for solving many problems faced in water. Watermanship is significant in still another way--it is the one quality which makes recreational swimming really possible.

In an earlier chapter swimming was referred to as the builder of water confidence. With the variety of aquatic activities that have been discussed, the importance of swimming skill should be clear. Even if swimming is not a direct part of an activity, it has always been recommended as an additional safety measure in case of emergencies. A fisherman who chooses to confine activity to the security of a fishing dock still flirts with danger without swimming ability. Each year many fishermen become so involved in the fight to keep the big one from getting away that they slip on spilled bait or wet surfaces and fall from rocks or fishing piers into the water.

Considerable discussion has been given to the importance of swimming as a means of survival. In this chapter, concern is for swimming for fun--swimming because we want to, not because we have to.

Swimming in a Crowded Pool

Most public swimming pools regardless of size or shape usually have one thing in common, especially in the summer--they are almost always crowded. Swimmers with confidence seem completely care-free as they move in virtually every direction in a pool. Individuals with less ability are usually more cautious and can often be found congregating near the walls of the pool and especially in shallow water. On a warm summer day swimming is not confined to the pool itself. Sun bathers seem to be scattered everywhere around the pool deck and surrounding area. Noise levels are usually higher than they would ever be during a swimming class. Beach-balls, inner tubes, and other flotation devices seem to be everywhere and the water is extremely choppy at most times as people splash and move about in the pool.

The environment in general seems almost too challenging to be enjoyable. Blind or partially sighted individuals with limited swimming ability who have previously been in such environments would have adequate reasons for avoiding these situations again. Such lively settings can and should be as inviting to visually impaired persons or to other impaired, disabled, or handicapped individuals as for anyone else. To individuals who have overcome the usual problems and developed real water confidence as well as a healthy attitude toward their physical limitations, swimming in a standard pool during regularly scheduled programs can be most satisfying and enjoyable. In the described pool activities or confusion, skilled blind swimmers

easily find themselves in the category of care-free individuals who can swim in any direction they desire.

These swimmers already have the physical know-how to perform successfully in pool activities. However, this is only part of the problem; another part is mental. It is one thing to know that you can participate with others in standard pool programs; having motivation and desire to do so may be altogether different. Unfortunately, temptation to avoid these seemingly confusing situations and remain in the peaceful and protective environment where skills were learned--probably only with other blind individuals--has caused many individuals to stop somewhat short of the goal of full participation in standard aquatic recreational programs. Adjusting to and accepting a physical limitation is not something a person can read about in a book and then do. This process takes time--not the same amount of time for each person. Hopefully, developing new skills in daily living techniques as well as aquatic skills presented in this book can help visually impaired individuals over this final hurdle.

Much of the feeling of inferiority experienced at times such as these is due to thoughts that the individual may not be able to do as well at something as sighted persons. A little success in just one swimming activity is often enough to get an individual on the way to a healthy adjustment in solving a problem. Once blind swimmers accept themselves as they are and recognize both their limitations and abilities, they find little or no problems in getting most individuals who use a swimming facility to accept them. In countless cases blind persons express that when they are at ease around others, others are at ease with them. This brings about further confidence for blind individuals which in turn results in still further confidence for others in their attitudes toward visually limited persons. The cycle continues until eventually reaching a point where sighted persons consider a blind individual as just another person. Visual limitations are recognized in normal proportions, not as something to be dealt with in an overprotective fashion.

On the other hand, individuals who are fearful or feel self-conscious often bring about a feeling of uneasiness among others with whom they interact. This uneasiness is reflected back to them as the negative cycle continues opposite to the positive cycle just discussed. A blind swimmer should not feel ashamed or embarrassed about asking for assistance in getting to and from the locker room or pool area. When approaching the pool deck a blind individual is not expected to know of irregular patterns of sun bathers and their personal belongings scattered throughout the area. The simplest solution to this problem is to approach the pool deck cautiously with white cane, dog, or partner, and by no means attempt to hide the fact that one is blind. Although swimmers and sun bathers may seem a little overprotective at first, this attitude is likely to vanish quickly as a confident blind swimmer begins to participate in pool activities.

Swimming and participating in aquatic activities with a buddy or group not only make the activities more enjoyable but help to eliminate usual pool orientation problems. When a blind swimmer is with others, feelings of self-consciousness which may otherwise interfere with chances of success in adapting are not likely to be noticeable. With other participants to

be noticed instead of just oneself, a visually limited swimmer can become so involved in recreational activities that one is not over concerned about his/her own performance.

Diving down and swimming below the surface are other enjoyable and relaxing experiences. In addition to giving an individual opportunities to break away temporarily from noise and confusion on the surface, they also provide a little more variety to the day's events. In a crowded pool a blind individual should relax and swim smoothly and slowly through the water so as to avoid violent collisions with pool walls or other swimmers. A swimmer should not wait until completely out of air before returning to the surface since another swimmer may be directly overhead. A blind swimmer should begin ascent a few seconds earlier than absolutely necessary to have enough time to maneuver around someone who may be temporarily blocking the approach to the surface.

At many facilities, swimming and diving are both done in the same pool. If diving boards are being used in such a pool, the diving area should not be used for leisure swimming, especially underwater.

Using the Diving Pool and Its Equipment. Deciding whether or not to use a diving pool or springboards at a standard swim center is not significantly different from deciding whether an individual should participate in a standard recreational swim program. Since diving does appear to be more dependent upon eyesight than recreational swimming, some blind individuals who have the ability might feel self-conscious about their appearances on diving boards, be discouraged, and turn away from this activity before giving it a fair chance.

Whether individuals have had previous practice in diving or simply want to learn, they should be encouraged to use the facility. Blindness does not necessarily mean that a person will make more mistakes or have more poor dives than anyone else. If an individual uses a safe and practical approach in learning where things are and a realistic approach is introduced for using diving boards (see chapter on Learning to Dive), a blind diver in no way disrupts or interferes with activities of others using the facility.

As in adjusting to normal swimming programs, the matter of a blind individual fitting into a regular diving program is also strongly affected by attitudes. If a favorable image can be presented to others, they will be more than happy to accept the individual and offer help only as necessary. Efforts to hide blindness or deliberately ignore the fact that it exists are never successful and quite often dangerous. The most practical approaches involve concentrating fully on skills that have been taught and emphasizing techniques to be used in performing these skills. Simply let the degree to which blindness is noticed or unnoticed take care of itself.

The most common reason people use diving pools during recreational swim periods is that they enjoy diving. A blind diver should also be there for that purpose. If an individual is constantly preoccupied with worry or self-consciousness about blindness, one can hardly enjoy an activity. A philosophy which has been applied to many situations and is effective

here is simply be yourself. Blind or partially sighted individuals with water confidence who can take control of situations and have formed good healthy attitudes about themselves and others should have no difficulties in adjusting to usual activities at diving pools.

It is only normal to expect other divers to stop at first and take special notice of a blind individual on a diving board. After a diver has demonstrated ability a few times, uneasy feelings which may have existed soon disappear. Blind divers can help their own cause and eliminate feelings of nervousness from the start by beginning with something simple which each one knows can be performed successfully. The awkward image of stumbling around trying to find the ladder to a diving board need never be created. Since a blind individual more than likely will not be using a diving pool alone, one should take a few minutes with other participants to become familiar with the equipment and its location. This familiarization period need not be a formal instruction session. Since the purpose of being at the pool is fun, it is not difficult to slip in necessary points during casual conversation.

Blind persons should not fear attitudes lifeguards may have toward them because of adapted procedures used on diving boards. Actually this is one aspect of diving which may work to the blind diver's advantage. In most diving pools a few reckless people dive in any direction and at any time without much concern for what is going on below them. A blind diver cannot take such chances and knows it from the outset. As soon as other divers learn that this individual always waits for a verbal all-clear before leaving the diving board, lifeguards as well as others using the pool develop feelings of respect--not sympathy--for the concern shown for both personal safety and the safety of others. Several lifeguards have reported that if more people used the caution demonstrated by some visually impaired divers, their jobs would be a great deal easier. Knowing that such a favorable impression can be created by simply following good sound safety practices, properly trained blind divers who have a respect for safety should never have any reason to be concerned about what a lifeguard thinks of their using diving boards at community or public swim centers.

Stunts and Water Games

General appearances of most swimming facilities suggest that the most common activities taking place in them are swimming and diving. This assumption is only partly true. Swimming pools can be used for instruction in aquatic activities such as elementary water skiing, skin and scuba diving, and small craft safety even though they are not usually associated with swimming pools. Many different stunts and water games can become part of aquatic recreation programs and add variety to activities of a day at the pool. Many of these activities are directly related to swimming and diving while others are standard games adapted for a pool.

Types of games and stunts that are possible in a pool are as limitless as one's imagination. Whether fun or the challenge of competition is desired, stunts and games can be pleasing to all regardless of an individual's capabilities in water. Many of these activities depend in varying degrees upon

eyesight while others seem almost tailor made for blind participants. It is impossible to list all adaptations which enable blind and partially sighted persons to participate in every water game. However, a few typical activities and adaptations are discussed. Hopefully this will arouse the imagination and interest of readers who seek ways to solve problems that come up in other activities. Difficult as many of these problems may seem, there is most always a solution; with a little imagination and time, solutions can be found.

Diving for Objects. Something about exploring beneath the surface of the water captures the interest of all who try it. Diving for objects has no set or standard rules and regulations. Rules are usually governed by where an activity occurs and who participates in it. Non-swimmers may be limited to the shallow end of the pool while experienced swimmers use the deep end. When combining participants with varying abilities, standards should be set around the abilities of the least capable swimmers so that they are in no danger during the game. For blind or partially sighted persons only two minor adaptations must be considered. First, someone must be responsible to see that an inexperienced or non-swimmer does not drift into deep water while below the surface. Second, to equalize competition, everyone should be instructed to dive with eyes closed and to explore the bottom completely by touch.

Objects used in diving should be small and simple with no sharp edges. Rocks and large heavy objects should never be used as they can be dangerous to persons who walk through the area and can damage the floor of a pool. Most commonly used items for diving are coins; even more suitable are flat metal fender washers. When this activity has been concluded, washers are easy to locate and remove from the pool. Furthermore, they may be placed over a bolt and stored neatly for future use.

Diving for objects can provide interesting and challenging competition for experienced swimmers and be a tremendous confidence builder for individuals who are still afraid of ducking their heads beneath the surface. Water depth for non-swimmers should be sufficient that they cannot touch the bottom without submerging and shallow enough that they can stand up and have their heads above water. Beginners often find that they become so involved in searching for objects on the pool bottom that they forget about their fears of going underwater. This is often one of the most critical points in teaching non-swimmers to swim.

Marco Polo. This game was originally designed for blind and partially sighted persons. Because of new and different challenges, Marco Polo is played today almost any place people gather to swim. This is simply the standard game of tag adapted to water. Besides the fact that players swim and splash at each other rather than running as in tag on the playground, the only difference is that players search for each other by sound rather than sight.

The person who is IT must keep the eyes closed at all times. Depending upon rules as decided upon for any game, other players may or may not have to keep their eyes closed. To start the game, IT usually counts to ten to give other players a chance to scatter about in the pool. In

searching them out, IT calls Marco; everyone else must reply Polo. Searching among voices and splashing sounds in a pool is challenging and exciting for swimmers of all ages. IT continues to call out Marco as often or as seldom as desired. Each time IT call Marco, others must reply Polo.

Though there are variations to this game, a few rules have always remained standard: everyone must reply Polo every time IT says Marco; no-one can hide under water; everyone must remain in the designated playing area; and no-one can leave the pool to avoid being caught.

As in diving for coins and objects, this game can be modified to suit needs and abilities of individual participants. Experienced swimmers may set up boundary limits which keep them in deep water at all times. They may or may not be allowed to hold on to scum gutters to rest. Such a game is extremely good practice for survival swimming though usual purposes, emphasize recreation and fun. If it is too uncomfortable for some swimmers to swim and tread constantly, allow them to touch gutters when necessary. For non-swimmers or those with limited ability, confine the game to water shallow enough for all swimmers to stand with their feet on the bottom and their heads above water. If any players are blind or severely visually limited, a responsible person should see that they do not drift into the deep end of the pool. Another adaptation for non-swimmers is to have all participants form a circle with IT in the center. When the game starts, those forming the circle may bend or twist in any direction but must at all times keep one foot in place on the bottom of the pool.

Walking on the Walls. This stunt, performed in deep water, is helpful for teaching an individual to control body movements underwater. The basic principle of movement in water requires that for the body to move in one direction, water must be moved in the opposite direction. This is especially true in Walking on the Walls. While the feet actually move in a walking motion up, down, and along the walls and floor of a pool, they do not push with the same type of force used on a sidewalk. Instead, they feel along, mainly to keep contact with the walking surface. Most of the propulsion comes from movements of the hands. Following the basic principle of movement mentioned above, the hands pull water away from the wall. This causes the body to move close to the wall, and since the feet are touching, they remain in place. To stand in place against a wall with the body at right angles to the wall and facing upward, downward or sideward, an individual need only be concerned with keeping the feet against the wall. Since there is a tendency to drift out away from the side of the pool, this force must be balanced by pushing or pulling water away from the side of the pool. This causes the body to float back and cling to the wall.

When a person wishes to travel up or down, two forces instead of one must be dealt with now. To travel downward, water must be pushed up; to travel upward, water must be pressed down. Since the feet still have a tendency to float away from the wall, some pressure against the water by the hands must be away from the wall so that the body stays in close.

An easy starting practice is to stand at the wall facing the gutter, then push down toward the bottom of the pool. From this point, place the feet against the wall and lie back. The pulling motion of the arms should

be downward toward the pool floor and back away from the wall. This keeps the feet in close in a walking position. With the usual help of natural buoyancy, especially when beginning the stunt with a full breath of air in the lungs, movement of the body is up toward the surface even if hand movements are not exact. With a little practice and more understanding of the principles of movement beneath the surface, it becomes easy to detect what the water is doing and what steps must be taken to move about in it. As control is gained over body movements beneath the surface, walking around on the bottom of the pool becomes just as easy as walking up and down the walls. As an individual becomes more familiar with this activity, less energy is used beneath the surface as one is more relaxed and able to stay below the surface much longer on one breath. As in skin diving, return to the surface somewhat sooner than absolutely necessary to allow for the possibility of someone being directly overhead.

A final suggestion for learning to walk around beneath the surface is to think relaxation while underwater. The most common reason for lack of success in this stunt is that an individual tears or thrashes at water rather than trying to pull just hard enough to offset forces which float him/her away from the wall. With true understanding of what is being done and why it is being done, an individual can walk completely across a standard width pool or do complete figure eights on the walls--all on one breath!

Another personal challenge is possible in a pool with floating lane lines for competitive events. A swimmer with control over body movements can actually walk upside down along a lane marker much in the same way as a tight-rope walker. Since water enters the nose much easier in an inverted position, the individual should keep the mouth closed and hum during the stunt. Air must be expelled through the nose for humming to be possible; as long as air is being forced out of the nose, water cannot enter. Strange and unusual as these stunts may seem, they can be extremely valuable in building underwater confidence and watermanship.

Playing Catch. All types of ball games are possible in water. Some of these games have been designed specifically for water while others such as baseball and basketball are simply modified and brought to the pool. A leisurely game of catch can be a lot of fun and may be more practical in many pools which are too crowded to allow for more competitive games. Soft playground balls or beachballs are practical for this purpose. For non-swimmers or those who have not gained confidence in water, tossing a ball back and forth in water approximately waist-deep is fun and relaxing. This often helps them overcome fears of water and become more at ease in it. A blind participant can enjoy this activity with only minor adaptations as much as anyone else. The blind player must first be told or shown where other players are located. This can be done easily by having each player speak or make some type of noise when in position and ready to play. No one should throw the ball to a blind person without first letting the individual know that it is his/her turn. When this activity is under way and rotation of turns is established, this procedure becomes automatic. The only other modification necessary is the manner in which a ball is thrown to a visually impaired player. The most practical method is to throw the ball so that it splashes in front of or slightly to the side of the individual. This is not only safer but gives the individual a chance to train the sense of hearing and challenges others in the game to improve their accuracy in throwing.

Wherever people gather to play catch, a game of Hot Potato almost always develops. This is simply a fast game of catch in which players get rid of the ball as soon as they receive it. To keep the game moving rapidly, the player to receive the ball after the blind person calls out as a direction finder as soon as the blind player makes contact with the ball.

For capable swimmers, the deep end of the pool provides a relaxing place to play ball and can do much to improve an individual's water confidence and endurance. Ball games cannot be played in deep water while it is being used for diving or when the pool is crowded. When playing catch in deep water, more skill and accuracy are required. Whereas in shallow water play each player stands with feet firmly on the floor of the pool and the head well above the surface, in deep water the body is suspended ~~with the~~ swimmer's ears just a few inches above the surface. While determining left and right may be just as easy by listening to voices of other players, determining distance to a ball receiver is more difficult when listening from the surface of the water than when standing in waist-deep water in which the ears are well above the surface.

Another difficulty in deep water is maintaining accuracy in throwing after deciding upon the direction to throw. In deep water there is nothing firm to stand on like the bottom of the pool in shallow water. Since an individual will more than likely be in a treading position, there is a tendency to fall backward as the ball is forced forward. Principles of movement discussed in a preceeding section are clearly evident here. While useful in walking on walls, these principles provide a little more challenge in this situation. To solve the problem, either kick in the opposite direction or pull with the free arm to keep the body in balance during the thrusting motion of throwing the ball.

This activity has done much to help many less confident swimmers gain control of body movements in water and has been especially effective in giving them greater confidence in their ability to stay afloat for extended periods of time. In numerous cases swimmers who thought that they could only tread water for a few minutes without resting have played catch and chased a ball around the pool for as much as thirty to forty-five minutes only to discover later that they had never once stopped to rest at the side of the pool during the game. Even though chasing a ball that went slightly off course demanded more energy and work than was comfortable, swimmers immediately went into a relaxing stroke while waiting for the ball to return. This again illustrates the importance of exerting just enough force against the water to maintain position or move to a desired location rather than thrashing violently to keep the head higher than necessary out of the water. By swimming or treading with smooth and gentle strokes whenever vigorous activity is not necessary, most swimmers learn that prolonger deep-water swimming is not really so much a matter of physical endurance as simply knowing how to relax and work with rather than against water. If it takes a ball game to help an individual lose the fear of deep water, then the game is worth the time and effort.

Song and Rhythm Games. For small children, especially those who are beginners in swimming, numerous games usually played on playgrounds can be brought to a pool with little or no adaptations netessary for blind players.

Among these are song and rhythm games such as Farmer in the Dell and Did You Ever See a Lassie? If children enjoy these games on the playground, playing them in the water can be even more interesting. Such games are easy to supervise and can do much to help small children overcome the worst problem in learning to swim--getting used to the feeling of water.

A Diving Stunt. This stunt, combining skill and accuracy in diving, underwater swimming, and performing an underwater task, can be performed from the side of the pool or from springboards. The only limitation is that the stunt should not be performed in over-crowded areas, especially where many people are diving. The only equipment needed is a sweatshirt.

Put on the sweatshirt, then dive from the edge of the pool or from a springboard, and continue downward until the bottom of the pool is touched; level off and then stop. Remove the sweatshirt, lay it in place on the pool bottom, and then return to the surface. Now try the same dive again and after leveling off on the bottom, attempt to locate the sweatshirt and put it completely on before returning to the surface. When the stunt becomes easy and is no longer challenging, try it from a diving board rather than from the edge of the pool, or try swimming for some distance after touching the bottom rather than stopping as soon as leveling off. Another way to make the stunt more challenging is to perform a somersault dive.

Without sight, a little more than the usual amount of practice is needed to achieve consistent performance in diving, especially from a high board. Attempting to come down and land on a sweatshirt on the bottom of the pool is added incentive for a blind diver. A blind diver knows without any doubt when consistency is achieved in this stunt.

Summary

In previous chapters of this book special emphasis was given to learning new aquatic skills. This chapter has been concerned with putting some of these new skills to use. Ideas suggested earlier for full participation in standard swimming or diving programs at swim centers are by no means the only possible approaches. Similarly, suggested games and stunts are not the only ones possible. These few suggestions are designed to stir the imagination of the reader. Water polo, water baseball, and water basketball can all be easily modified for blind and partially sighted players. Relay races and individual competition are always popular and practical in pools which have roped-off racing lanes.

With the exceptions of over-crowded conditions and particular facilities which may be available, the variety of swimming pool activities possible is limited only by an individual's--student and instructor alike--imagination and creative talent. If some usual games do not at first seem practical for blind or partially sighted persons, a few extra moments of thought can lead to adapted methods which may not only make these games possible but result in the invention of completely new games. Enjoyment of such games is not limited to visually impaired persons. A good example of what a little creative thinking can do is development of Marco Polo from the standard game of tag. Although the game was originally designed for blind and

partially sighted players, people of all ages--both visually limited and sighted--now enjoy it. So when participating in or planning swimming pool activities, blind participants as well as sighted providers of services must face the situation in terms of What would I like to do? instead of What can blind people do?

ERIC

NEW GOALS FOR BLIND PERSONS IN AQUATICS

Some men see things as they are and say, Why?
I dream things that never were and say, Why Not?
Robert F. Kennedy

As we begin to think of the many activities offered in aquatic programs today, we suddenly realize how much this field has expanded in recent years. Although many of these activities are not completely new, until recently they were not routinely included as part of standard on-going aquatic programs. School, college, and recreation center aquatic programs which in the past consisted almost completely of swimming and lifesaving now include instruction in such activities as small craft, sailing, synchronized swimming, and skin and scuba diving. With increased popularity of motor-boating, water skiing has also found its place among highly popular aquatic sports.

All of these developments are in extreme contrast to aquatics as discussed in the early pages of this book. Especially significant in these comparisons were limited opportunities in the past for full participation of blind persons in aquatic activities as contrasted with the tremendous potential for their participation today. Traditional beliefs and misconceptions about blind and partially sighted persons are with us today as they were in the past. However, today open-minded approaches enable us to recognize the truth and separate facts from fantasies.

There are no real reasons why blind persons could not have started water skiing, skin and scuba diving, and participating in other aquatic activities earlier than the late 1950's and early 1960's. Had it not been for the dedicated efforts of a few imaginative individuals who believed in blind persons and refused to accept traditional beliefs, the first breakthrough in these areas might still be in the future. The significance of these imaginative efforts has been tremendous. Goals of visually impaired persons need no longer be limited to swimming across a pool or passing a beginners' swimming test to earn the privilege of paddling in a small boat! Now we can think about new horizons, higher and more attractive goals in a full range of water activities. These are the same goals which attract sighted participants to aquatic programs and activities. The goals are there and opportunities waiting for blind and partially sighted individuals who are willing to face these challenges.

Reviewing Progress

Before taking off on new aquatic adventures, this is a good time to review progress made by blind persons in aquatics and to reemphasize opportunities available for them to advance in different aquatic activities. This might be thought of as a state of the art inventory--what do we have to work with, where have we been, and where are we going? Although it would be difficult to mention all aquatic activities possible for blind persons, subjects covered in this book are sufficient to keep us busy for quite some time into the future.

Just as activities such as skin and scuba diving remained hidden in isolated parts of the country for some time before being brought out into the open by newspaper articles, other aquatic activities being done by blind persons in other parts of the world might still be unknown to us today. As we begin to evaluate situations, we must remember that the greatest determiners of success and participation in any activity by impaired, disabled, and handicapped persons are attitudes--attitudes of these individuals themselves as well as attitudes of those who teach or work with them.

- It was pointed out in the beginning of this book that visual limitations should be recognized and dealt with in proper perspective.

- Special swimming facilities need not be built for blind persons though some characteristics of pools and swimming facility design should be recognized in terms of their effects on individuals with visual impairments.

- If new activities are presented to blind persons in meaningful and practical ways, there is no reason why visually impaired students cannot progress right along with other students in regular classes.

- Swimming, the foundation for water confidence, is undoubtedly the most popular of all aquatic activities in which most groups participate, including groups of visually impaired persons. All basic strokes are possible though some more practical than others in given situations. Swimming can be tremendously enjoyable and is definitely more than simply a means of getting from one side of the pool to the other.

- Diving is another standard pool activity which certainly should be open to blind and partially sighted persons. Both simple and complicated dives from pool side and springboards, including high boards, are enjoyed by totally blind divers as well as individuals with partial vision. Participation and instruction in diving are sometimes limited due to lack of qualified instructors. Sometimes a blind individual may be a little shy about seeking a spotter or someone to give an all-clear before one leaving the diving board.

- Lifesaving and survival swimming techniques are not as popular as recreational activities among blind and partially sighted swimmers. However, they are known and practiced constantly by individuals who spend much time in and around water. Some knowledge in this area is essential and should be promoted in all aquatic programs for blind swimmers due to their special orientation problems in water. For persons wishing thorough knowledge in these areas, standard Red Cross courses in lifesaving and water safety instruction are open to them. Blind individuals have been certified in lifesaving and water safety instruction by the Red Cross with the understanding that they are qualified in these areas and have knowledge to assist whenever their services are

needed. For obvious reasons, blind individuals are not eligible to serve as lifeguards. Whether or not an individual chooses to work toward earning a certificate the greatest objective in these areas should be development of watermanship--true water confidence and control of all situations in the water.

Boating and canoeing have always been popular, especially in camp programs. However, in many cases, either due to lack of facilities or prevalence of traditional attitudes toward blind persons, opportunities for visually impaired individuals in small craft instruction and participation have been limited. Special non-tipping rafts are desirable for persons with multiple conditions and special problems. An individual whose only physical limitation is blindness should be encouraged to participate in the full range of standard small craft activities.

Water skiing is one of the relatively new activities which was tried, found to be practical and enjoyable, and has grown rapidly in popularity ever since. A limited number of recreation centers for blind participants offer water skiing as regular activities. Yet each year more and more blind and partially sighted persons are learning to ski at camps, resorts, and on informal outings with sighted groups.

Skin and scuba diving are probably the newest aquatic areas entered by blind persons. Skin and scuba diving instruction is offered at a limited number of recreation centers for blind persons throughout the United States. Because of increasing popularity of this sport, instruction in skin and scuba diving is now offered at many schools and colleges. Blind college students can take advantage of opportunities to learn a new sport and gain physical education credit at the same time by enrolling in such courses. Skin and scuba diving seem to be filled with adventure and opportunity for visually impaired persons. A dramatic illustration was seen through a group of blind Swedish scuba divers which in 1970 toured the United States demonstrating their skills. Members of this group had previously salvaged items from a sunken ship in the Black Sea.

With swimming ability and watermanship considered to be the most important prerequisites for all aquatic activities mentioned, a swimming pool takes on a whole meaning for confident blind swimmers. In addition to swimming and diving, almost unlimited numbers of stunts and water games are possible to provide fun, competition, and an endless variety of activities for swimmers of all ages and with varying degrees of skill and ability.

Setting New Goals

After having reviewed some of today's possibilities in aquatics for blind and partially sighted persons, all kinds of new and exciting goals immediately seem possible. Though specific goals may vary greatly from

one reader to the next, one thing is certain--there are more activities to choose from than most people ever dreamed possible. To some the most inviting challenge might be to go scuba diving in deep water; to others, the greatest goal might be to master a single water ski. Still others may wish to swim fast with a long range goal of participating in competitive swimming events.

The list continues to grow. There are as many different types of goals in as many areas as there are people participating in aquatic activities. With strong emphasis throughout this book on staying above situations at all times in the water, it should be clear that the most important goal to achieve is watermanship. This does not mean simply being able to pass elementary swimming tests to qualify for something else in aquatics but attaining a real feeling of being at ease in water at all times.

While watermanship is valuable to everyone who participates in aquatic recreation activities, it is especially important to blind and partially sighted persons because of their special orientation problems in water. Though all of the new possibilities in aquatics seem especially inviting, they are more enjoyable, safer, and easier to accomplish when an individual possesses watermanship. Fear of water is removed and an activity truly becomes an enjoyable experience. In activities which directly involve swimming, watermanship allows an individual to learn and participate with the greatest possible degree of confidence. Where swimming is not directly involved, watermanship is added safety insurance.

Thinking about the Future.

So here we have aquatics, much like a tree with enough branches to reach out and touch just about everyone with even the slightest interest in water recreation. In fact, there are probably several branches of aquatics which will reach out and arouse interest among individuals who up to now may have never had a chance to become involved. To readers who already know what it is like to participate in aquatic recreation activities and to enjoy the challenges of new experiences, a few ideas may have already begun whirling around in your minds. To many individuals, just the activities presented will be exciting and challenging for a long time to come. What about the future? Where do we go from here?

It was pointed out earlier that this book is not the complete story of aquatics for blind persons. It is really only the beginning. Some activities of the future are almost here today--they simply need to be introduced on a larger scale. As they become accepted, they will gain in popularity. Although some areas of aquatics for blind persons may still be in experimental stages, the future looks promising as many aquatic activities seem to be highly practical for blind and partially sighted persons. Some of these new ideas are discussed in the following sections.

Synchronized Swimming. A well performed synchronized swimming act is always beautiful to watch. With the wide variety of stunts and movements normally included in these routines, it is surprising that blind swimmers have not been encouraged to participate in synchronized swimming long

before now. As with many other activities discussed, a few problems must be solved. Most tools and techniques necessary for blind and partially sighted swimmers to perform well in synchronized swimming are already available.

The major problem for blind swimmers as expected is knowing exactly where one is in relation to other participants. In some modern pools where synchronized swimming is taught, music can be piped into the pool through underwater speakers. Swimmers can listen to and concentrate on their rhythm while below the surface. In some more elaborate facilities a coach or director can osbserve a group through an underwater window and speak to swimmers while they are below the surface of the water through a separate sound system which cannot be heard on the surface. Such a facility is made to order for a blind swimmer who is learning or performing synchronized swim routines. While the audience at the surface is listening to the music and watching the swimmers below, a blind swimmer below the surface can also hear the music and concentrate on rhythm. In addition, the blind swimmer is able to hear instructions and corrections for movement patterns from a director in an observation window. Learning synchronized swimming at such a facility would be a pleasure and quite a luxury. However, all of these modern devices are not necessary for synchronized swimming to be fun and beneficial to visually impaired persons.

With many aquatic activities now conducted at recreation centers for blind persons, surprisingly enough many individuals today already have all tools necessary for success in synchronized swimming. However, they probably have never used all of these skills together. For example, the first and most obvious requirement is that an individual know how to swim; many blind individuals already have this skill. Another requirement is ability to make body movements in rhythm to music. Dancing was a popular activity among blind persons long before more active sports became popular.

About all that remains is developing the ability to dance or move about in the same rhythm and in the same fashion as the other swimmers. This is one of the most critical aspects of synchronized swimming and the factor that makes the activity so beautiful. In fact, moving, working, and performing together is what synchronized swimming is all about. Many blind persons have these skills also! In numerous stage productions, groups of blind persons have performed dances involving synchronized movements. Chorus line activities, drill team routines, dances involving groups or partners, and other rhythmic activities depending almost completely on each member of the group doing the same thing at the right moment have all been presented with tremendous success.

Once an individual has learned the part and knows what should be going on during any given point during the music, such activities become simpler than reciting a memorized poem. Music constantly reminds a performer of the rhythm and tells what should be done. While some groups of all blind participants have performed successfully in this area, mixing blind and sighted persons can make these activities a little easier. In partner routines, a blind swimmer has little or no difficulty working with a sighted person. Routines performed completely on the surface are easier for a blind swimmer who can maintain orientation by concentrating on the

direction and location of a music speaker and not be bothered with such problems as swimming the wrong way or getting out of line or formation.

When underwater speakers are not available, these problems are a little more difficult but not impossible. A swimmer simply must maintain orientation with a speaker before going below the surface. Even more important, all swimmers must concentrate on the speed or rhythm of the music so that they can keep it in mind while performing underwater and still be in rhythm when returning to the surface for the next phase of the routine. Based on the tremendous success that groups of blind individuals have had in synchronized dance routines on the stage, there is no reason to feel that performing synchronized stunts in the water is too difficult or challenging. The only thing different from performing on stage is the environment itself--water. This presents a few new problems but solutions have already been discussed in previous chapters. For blind or partially sighted swimmers with water confidence and desire to perform with others in various types of group productions, synchronized swimming is an extremely rewarding activity which provides many opportunities for expressing creative talents.

Aquatic Competition Involving Blind Athletes. Putting blind or partially sighted athletes in competitive aquatic events is not simply a dream--it is already reality. Unlike other activity areas, this does not involve learning new or specialized techniques. Instead, we are mostly concerned with attitudes--attitudes of blind athletes toward competitive aquatic activities and attitudes of coaches and officials who handle these events. If an athlete has developed skills necessary to make aquatic competition possible and practical, eyesight or lack of it should not be the determining factor as to whether or not one should compete.

In specialized programs for blind persons at summer camps and recreation centers, competitive swimming events have been conducted in which all participants were either blind or partially sighted. Few people ever question that these activities are possible. However, we are no longer concerned with limiting participation to specialized or segregated programs; we are talking about blind athletes in standard competitive events.

From time to time articles appear in newspapers across the country about impaired, disabled, or handicapped individuals who have excelled in certain sports. It is easy to assume that if one part of an individual's body is impaired, that person should be put in activities which emphasize use of other parts of the body. While this is one way out, it often rules out possibilities that with a few adaptations an individual can gain much satisfaction and confidence from using the impaired part of the body. There is also the very real possibility that regardless of what beneficial effects an activity might have on an individual's physical condition and his/her adjustment to it, that person might simply have a strong desire to participate for no other reason than the sheer enjoyment of the sport.

Who could have a more difficult problem to overcome than Peter Strudwick, nationally known marathon runner who was born with no feet? He competes in the same races and by the same standards as able-bodied distance runners and often finishes well ahead of many of them. This is a tremendous accomplishment in any foot race but even more impressive in view of the fact that

these are official marathons. Courses may vary as to the number and types of hills and level stretches but they all measure twenty six miles, 385 yards, the accepted world standard for marathons. There are many other success stories of physically impaired persons who have conquered their problems and overcome seemingly overwhelming odds. The story of Peter Strudwick is but one example to discourage thoughts of avoiding participation and competition with others in aquatic activities such as those presented in this book.

With the above example of success and determination to think about, problems a blind individual must overcome to compete in aquatic activities do not seem so difficult after all. There are numerous competitive opportunities for blind persons in swimming as most of these events are conducted in pools with roped off racing lanes. The problem of losing orientation in a pool is almost completely nonexistant. The only critical factor is knowing when and where to reach for the wall at the turn-around point. If an individual is concerned about shaving off seconds or fractions of seconds from racing times, this phase of the event must be thoroughly practiced. For athletes who have the confidence and wish to participate, but are really not strong enough or fast enough to compete with a particular swimming team, other opportunities for competition exist.

Often in dual meets at the collegiate level, complimentary entries, in addition to swimmers competing for points, are allowed to participate in various events. Although this is a common practice, complimentary entries are not there to accommodate individuals with physical conditions. These swimmers usually participate to practice an event, gain experience, and compare their times against those who are competing for team points.

Putting a blind individual in a diving event as a complimentary entry was first practiced by Ron Bull, formerly the swimming and diving coach at California State College at Hayward. The experience proved to be highly practical and most rewarding for everyone concerned. It did much for the confidence of the diver and provided him with a truly competitive athletic experience. Even more significant, this demonstration did much to break down some of the inaccurate traditional beliefs concerning blind persons and their activities.

The diver was judged and scored on the same basis as everyone else in the competition. The only difference was that as a complimentary entry, scores were not added to the team score. This is the usual procedure for all complimentary entries in any swimming or diving events included in meets of this kind.

The attitude of Coach Ron Bull shall long be remembered and should stand out as a shining example of what can be accomplished when coaches, officials, and blind athletes themselves are willing to explore new and adventurous ideas. Without these attitudes, countless talented blind and partially sighted athletes may never experience the thrill of athletic competition in official events such as collegiate swimming and diving meets.

Blind as Instructors in Aquatics. In an earlier chapter it was mentioned that blind individuals can now be certified in lifesaving and water

safety instruction. Since these are difficult standards, simply earning certification is an outstanding achievement in itself. However, for a qualified blind individual with imagination, this need not be the limit. Why not put a blind person's knowledge to use to help other individuals, impaired, disabled, or handicapped as well as able-bodied, gain through the experiences of the visually impaired individual?

There are numerous situations in which blind or partially sighted persons have served effectively as instructors. On several occasions a blind instructor has obtained a tremendous psychological lift when working with sighted as well as blind or partially sighted students. Once students realized that this totally blind instructor was able to help them, there was a general attitude of Well--if he can do it himself, I guess he really knows what he is talking about. Individuals with limited swimming ability who had never before ventured into deep water seemed quite relaxed working with this blind instructor in deep water while treading, in survival swimming, and in canoe safety instruction. Instruction in these situations is usually on a one-to-one basis or as students gain confidence, one instructor with a small group of students. A blind instructor who has gone through various phases of training is familiar with most problems which are unique to blind persons and in many cases is able to eliminate problems which might be overlooked by sighted instructors.

In teaching certain aquatic skills, vision is normally considered necessary to determine whether a student is doing a particular movement in the proper way. When working on a one-to-one basis, with a group of students, or with small groups in shallow water, a blind instructor can overcome much of this problem. As a student the blind individual felt movements of an instructor or had the instructor move arms or legs in desired rhythm patterns; a blind instructor can do likewise with students. Movements can be demonstrated in shallow water while sighted students watch and blind and partially sighted students feel motions tactually. To evaluate student progress various arm and leg movements can be checked tactually as the student works near the edge of the pool or in shallow water. The only difference between this and what the blind instructor did personally in learning is that skills are being taught, not learned. If there is any doubt as to the degree of precision a student has in a particular stroke, ask the opinion of a sighted water safety instructor. The important point is that during instruction and practice sessions when students are likely to need individual help and encouragement, a blind instructor can provide this with confidence.

Blind individuals can also be effective in teaching other aquatic skills, including diving. Even without sight an instructor can be extremely effective in helping a beginning diver overcome the fear of those first frightening plunges into a pool from the deck. Starting positions of elementary dives can be supervised safely and quite accurately by a blind instructor from the edge of the pool. However, when a diving board is used a sighted person should always be on hand as an added safety precaution. Whatever the aquatic activity, a blind individual who knows the subject well, who can present skills safely, and who can gain the confidence of students can find tremendous satisfaction in being able to help others enjoy the water in the same safe way that he/she does.

TEACHING SWIMMING WITHOUT SIGHT

DEMONSTRATING THE SKILL...The blind instructor physically demonstrates the kick used in the side stroke. While a sighted student many observe visually, a blind student checks movement patterns tactually.

EVALUATING THE STUDENT'S PROGRESS...After sufficient practice time, the blind instructor may ask the student to demonstrate the new skill at the side of the pool. He evaluates the student by tactually examining foot and leg movement patterns.

Advancing Beyond Present Skill and Knowledge. Throughout this book we have been concerned almost entirely with finding new and practical means by which blind and partially sighted persons can participate in the full range of aquatic activities. Now that many approaches have been presented, we come to the most important part--putting new skills to use in developing new and more advanced skills. As in synchronized swimming, we already have most of the tools and knowledge necessary. What we need now are strong healthy attitudes and many instructors with imaginative minds. Because one or a few blind individuals are capable of performing double somersaults from diving boards does not mean that all blind persons are capable or even interested in advancing this far. On the other hand, we can not assume that this or any other dive is the limit simply because someone else only advanced that far.

When blind individuals were introduced to water skiing, it was long felt by many people--surprisingly enough still by some--that this activity is only safe as long as blind skier remains on two skis and within the wake of a boat. Yet today many blind skiers do quite well both inside and outside of the wake and have been quite successful on single skis.

It is often extremely difficult for even the most imaginative sighted instructors to plan activities for blind participants. They often try to imagine themselves in the place of a blind person facing a new activity while staring at a wall of eternal darkness. This in itself is a major cause of the problem. One of the major reasons for many misconceptions about blind persons and negative attitudes toward this condition is the inaccurate concept which most sighted people have of what blindness is actually like. It is difficult to know just what a blind person sees as much of this is a mental process, especially for those who have been totally blind since birth. Most totally blind persons agree that life is not a wall of blackness with no end. One who has never seen light has never seen darkness either for there is nothing with which to compare light or lack of it. To many individuals who have seen at one time, mental images of environmental factors are usually formed. One possible way of describing effects of total blindness is to think as you read this printed page what you see directly behind you at this moment. Beyond the scope of your own vision, the room obviously does not become a wall of mysterious blackness. Most readers probably fill in blank areas with mental images of surroundings familiar to them. The only difference between what the sighted reader visualizes mentally and what a totally blind person visualizes is that the blind individual must fill the full 360 degrees of the surrounding environment rather than just that space behind. With this concept in mind when planning aquatic activities for blind or partially sighted participants, there is less temptation to overexaggerate problems of blindness.

Open Water Swimming. Participation by blind and partially sighted individuals in competitive and recreational long distance open water swimming has already been accomplished on several occasions. Because of many unknowns in open water swimming such as tides, currents, boats, and other problems, there is often much more concern--sometimes over concern--about accidents to blind participants in this area than in other aquatic activities. As would be expected, opportunities for the visually impaired individuals in open water swimming are usually quite limited. Once more we face the problem of developing practical and appropriate attitudes.

In the mid 1960's, it was reported that at least three blind individuals swam the English Channel. Their method consisted of swimming behind a pilot boat which carried a small portable radio. They maintained their course of direction by simply following the sound of the radio which was hung over the back of the boat.

In early 1970, the Dolphin Swimming and Boating Club of San Francisco admitted its first blind member in its ninety-three year history. It quickly became obvious that no negative feelings or excessive fears about the blind swimmer's safety existed among other club members. The membership generally felt that if the individual could stand the cold and choppy waters of San Francisco Bay, he was welcome to participate. During the first year several methods were tried for maintaining orientation and direction in the water. The method used for most swims was simply to have a sighted partner swim beside him. A stroke which allowed the ears to come above the surface for short intervals made it possible to hear corrective commands from the sighted partner. Pilot boats were always available throughout the courses of swims to insure the safety of all participants. The idea of having one of the rowboat pilots talk to the blind swimmer and direct him to follow the boat was also tested and found to be quite successful; this method might be a little more difficult in extremely rough water.

Highlight of the year was the club's fifty third Annual Golden Gate Swim, a distance of approximately one mile. The swim started at Fort Point in San Francisco below the Golden Gate Bridge and finished at Lime Rock on the Marin County shore below the north end of the bridge. Because of tricky currents and many other unknowns in the Golden Gate Strait, swimming commissioners of the Dolphin Club felt that in addition to a partner, the blind swimmer should be closely supervised by one of the pilot boats. Both men completed the crossing in approximately ninety-three minutes. Because of extreme cold and adverse water conditions, the blind swimmer did not move in and touch the official finish point at Lime Rock--thus no official finishing time was recorded.

When the swim was held again the following year, weather conditions were about the same as large rolling swells came in under the Golden Gate Bridge. During the swim the water was extremely choppy in several spots. With one year of experience in this type of swimming and with a much improved stroke, the blind swimmer and his partner completed the crossing and officially finished at Lime Rock in eighty-four minutes and six seconds--the open mindedness of the membership of the San Francisco Dolphin Club had paid off handsomely. Every possible safety precaution had been taken beforehand; all that remained was the final result. Needless to say, that one short moment when the blind swimmer pushed against the sharp jagged surface of Lime Rock had a tremendous impact on all concerned. For him it was the realization of another meaningful goal. For other club members as well as the swimming commissioners there was pride in knowing that they were a part of a whole new concept in athletic activity for visually impaired persons.

With a Goal in Mind

As this book draws to a close we again find ourselves at a critical point where another important step must be taken to enable blind and partially sighted persons to become active and integral parts of the world of water recreation. Perhaps foregoing discussions may arouse interest and imagination of persons working with other types of impaired, disabled, or handicapped individuals. Many aquatic activities and various adapted methods which make participation possible for visually impaired persons can be recalled from review of previous chapters. Some of these approaches and techniques may be completely new to the reader. There has been a considerable amount of time spent discussing the idea of putting these skills to practical use and defining new and more challenging goals for visually impaired participants. But this is not simply a methods book.

More important than the methods themselves is the philosophy behind them and their psychological messages. An individual can memorize all procedures for every aquatic skill presented but without the proper attitude to go with them, has completely missed the whole purpose of this book. That critical step must be taken by YOU the reader. With the knowledge of the skills in mind, the philosophy and reasoning behind adapted methods, and with a favorable and open minded attitude, you the reader, are challenged to move forward and ever onward with specific goals in mind.

Whether student or instructor, an almost unlimited world of aquatic recreation awaits you. We can speak in terms of realizing goals but if we stop when one goal has been accomplished, any activity soon loses its charm and becomes less interesting and stimulating. As one goal is reached, a new goal is always a little further ahead just waiting to be challenged. This does not mean that an individual must continuously attempt progressively more and more difficult activities. For many individuals the greatest goal is in improving self-image and self-confidence through continued participation in well enjoyed activities.

In the past, aquatics for blind and partially sighted persons may have been a highly specialized field. Today aquatic opportunities have expanded and continue to reach out to enrich the lives of many visually impaired individuals who otherwise would have lived far less active, interesting, and challenging lives. Aquatic Recreation for the Blind provides a foundation and some building blocks. Imaginative and creative minds are needed to start putting pieces together in meaningful patterns. Regardless of which direction an individual wishes to take and as long as one maintains a continuing interest in aquatics, in addition to finding great satisfaction and enjoyment, one is constantly working toward and achieving the most valuable and meaningful goal a impaired, disabled, or handicapped individual can achieve--the goal of improved self-confidence.

EPILOGUE

The human race will not only endure but prevail.
William Faulkner

While the manuscript for Aquatic Recreation for the Blind was being processed, a letter was received from the author, Harry Cordellos, which dramatically punctuated the values of aquatic activities in general and water skiing in particular in his life. His letter in part stated--

"I have had two opportunities to test much of what I wrote on the chapter dealing with water skiing. Still putting safety first, I pushed techniques far beyond anything that will be approached by many of our readers. In March I had the narrowest of narrow escapes from death when I fell into an open freight elevator and was grabbed only inches before I tumbled out of reach of a worker. The fall would have been three stories or close to fifty feet. Needless to say most of my long standing confidence was destroyed. I would not even enter the subway platforms alone for a while.

"Remembering what water skiing had done for me when I first learned to ski, I jumped at the chance to go skiing twice this month and though it was still a little frightening at first, I began working with the slalom ski and have progressed to the point where I may be skiing through a slalom course this summer in a water ski exhibition. Yes, the methods I suggested in the book worked with no short cuts to safety even when cutting over the wakes at close to thirty miles per hour. We keep the boat speed at about twenty-five miles per hour but the speed increases suddenly when a skier cuts back and forth from one side of the wake to the other. Just as is pointed out in the book, it really only requires good safety habits and a thorough understanding between skier and pilot regarding signals before turning on the engine.

"I also had a chance to try kayaking last week in preparation for a bike, boat, and run event to be held in July. While I have worked with all of the methods mentioned in the chapter on small craft safety and instruction, this gave me a chance to try them in a more natural setting than in a controlled environment with no other boats around. We tried other adaptations to see if any revisions of the material might be necessary; I am happy to report that everything in the book worked perfectly. The experimental methods had some disadvantages but these were lost among the advantages. Briefly, we tested the idea of having the blind paddler in the front seat as compared to having him in the back. The front is obviously better as the sighted guide can watch the stroke and keep the rhythm. We even got tipped over by waves from a power boat pulling a skier in the nearby slalom course. Survival techniques worked as well, if not easier, than they might have worked with two sighted paddlers. A thorough knowledge of what we were doing and that all important quality of watermanship made the difference. I am sure you realized that everything mentioned in the manuscript was tested over and over before putting it into

print. However, experiences mentioned in this letter should convince people beyond any doubt that we have some very sound material."