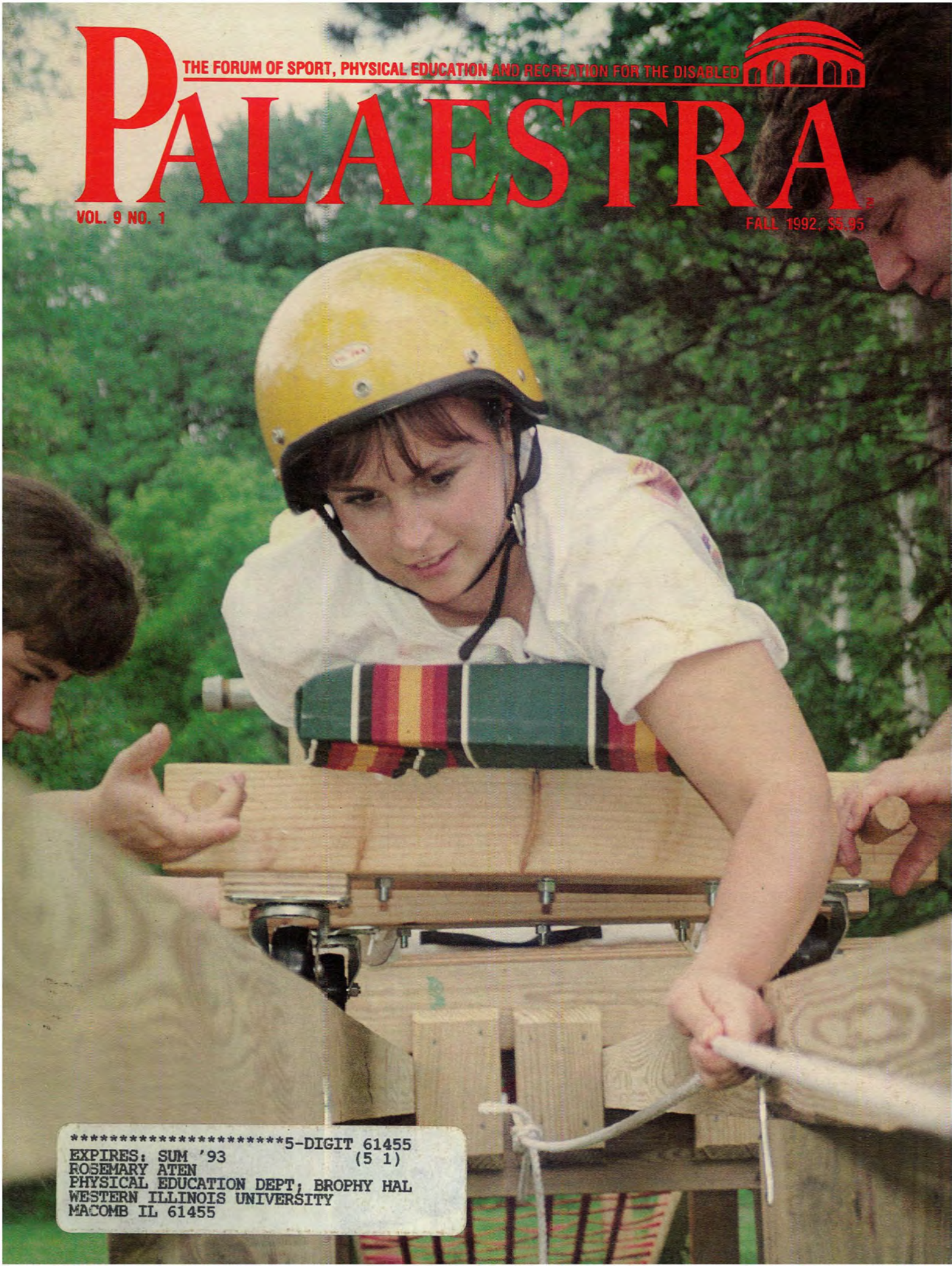

THE FORUM OF SPORT, PHYSICAL EDUCATION AND RECREATION FOR THE DISABLED

PALAESTRA

VOL. 9 NO. 1

FALL 1992, $5.95

Jim MacLaren, leading triathlete, Boston Marathon amputee world record holder, Air-Flex wearer.

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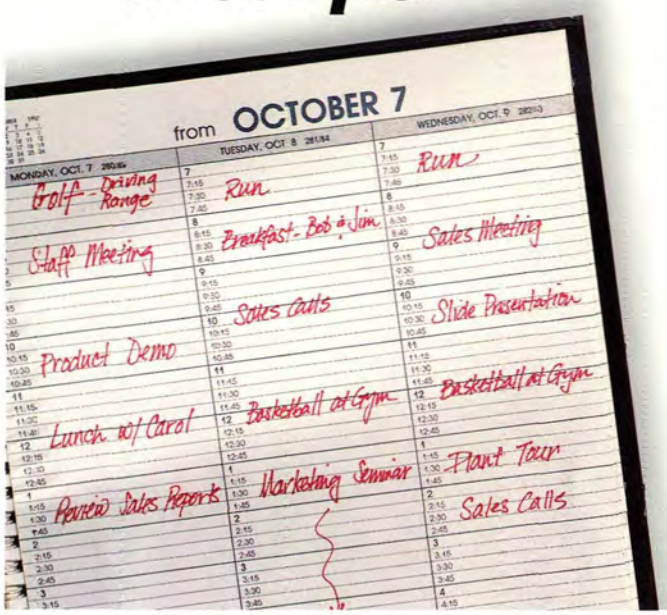

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Contents

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EDITOR'S CORNER

In Memorium, Dr. Charles E. Buell

Dr. Charles E. Buell

Charles E. Buell, pioneer, innovator, advocate par excellence for physical education, sport, and recreation programs for individuals with visual impairments, passed away October 23, 1992, in San Juan Capistrano, California. Charles Buell was a founder of both the United States Association for Blind Athletes, serving on its Board of Directors for a number of years, and the California Association for Blind Athletes, serving as its first president; he continued to work tirelessly for athletes in both organizations, literally from his death bed. He joins Josephine, his beloved wife and partner in so many programs and activities over their lifetimes, who passed away earlier this year.

Dr. Buell's contributions to physical education, recreation, and sport for individuals with visual impairments cover all areas—athlete, teacher, coach, author, film developer, researcher, service provider, public relations and information dispenser, fund raiser, and staunchest of advocates. For many years his was a lone voice encouraging, cajoling, demanding more and better opportunities through physical education, sport, and recreation for persons with visual impairments. Even as a single voice, he was always years ahead of his time, never accepting the status quo, promoting and stimulating such things as integration in programs with sighted participants, and full utilization of typical

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physical education, recreation, and sport activities with minimum accommodations.

Charles Buell grew impatient—even testy—when told that his ideas and recommendations would not work. He knew they would work, for he had implemented such approaches throughout his distinguished career. Dr. Buell, legally blind since his birth March 30, 1912, in Beaumont, California, continued to participate actively throughout his life, having competed in track and cross- country at school and university levels. As an adult he participated in master's track events and jogged two miles per day; even in his last days he continued to walk two miles daily on a rather hilly course.

He had taught physical education and coached in both schools for the blind and regular public school programs. He integrated students with visual impairments successfully into regular physical education programs and sport activities. His philosophy emphasized abilities—not disabilities, similarities—not differences, and was highly positive—not negative.

Much of the growth and progress over the last thirty years in adapted physical education and special sport programs in general, and related to individuals with visual impairments in particular, can be attributed to the vision and leadership of Charles E. Buell. Many of these programs have been built upon the solid foundation established through his efforts. Throughout the years, Charles Buell has been recognized by many professional associations and volunteer organizations, including the prestigious Anderson Award in 1974 (year of his official retirement) by the American Alliance for Health, Physical Education, Recreation, and Dance; and in 1991 for dedicated leadership and significant contributions in sport for the disabled by ***Palaestra: Forum of Sport, Physical Education, and Recreation for the Disabled.***

He was a legend in his own time, and the continued development and expanded opportunities in physical education, sport, and recreation for individuals with disabilities in general and those with visual impairments in particular will be an undying legacy to this giant in the field. Dr. Charles Buell will be missed. . .we are all better for having had the privilege of knowing and being influenced by him.

Editor's Note: Individuals and organizations wishing to remember and recognize Charles Buell may make donations to the California Association for Blind Athletes (33905 Calle Acordarse, San Juan Capistrano, California 92675), as this organization was an extremely important part of his life.

• ADVERTISING INDEX •

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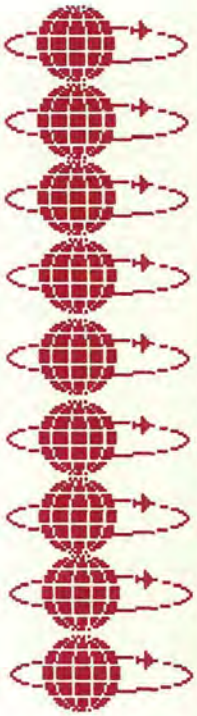
NATIONAL SCENE



National Scene offers each Disabled Sport Organization, officially a member of the COSD, an opportunity to disseminate timely information about its program to ***Palaestra's*** *readers. Information must be received on or before the first of the following months: October, January, April & July. Send all materials to* ***Gail Webster,*** *Department of Heath & Physical Education, Kennesaw State College, PO Box 444, Marietta, GA 30061. (404) 423-6216*

AAAD

U.S. Team Tryouts

The American Athletic Association of the Deaf (AAAD) sponsored its first ever U.S. Deaf Sports Festival at the California School for the Deaf and Ohlone College in Fremont, CA, June 23-30, 1992. It was the official site for tryouts for the U.S. Team/World Games for the Deaf in Sofia, Bulgaria, July 24-August 2, 1993.

Eleven sports tryouts were held for men's and women's swimming, men's water polo, men's team handball, men's and women's basketball, men's soccer, men's and women's tennis, table tennis and badminton, men's wrestling, shooting, and men's and women's bowling. A demonstration for cycling was also held. Tryouts for volleyball were completed last year, but the national championships took place in Flint, MI, June 24-26. Track and field tryouts took place at the Ohio School for the Deaf in Columbus, OH, June 18-20.

For other information regarding the Deaf Sports Festival contact: AAAD National Office, 3701 Harrison Blvd, 2nd Fl, Ogden, UT 84403-2040, (801) 393-7916 TDD, (801) 393-8710 Voice.

Athletes of the Year

Kurt Simmons of Staten Island, NY, and Lindy Decker of York, PA, were selected as the 1991 AAAD Male and Female Athletes of the Year. Simmons, a 21-year-old speedskater, earned three gold medals in the 500, 1,000, and 1,500 m races and a bronze in the 5,000 m race at the Winter World Games for the Deaf in Banff, Canada. Simmons is currently a student at Gallaudet University.

Decker, also 21, is a bowler who has set a number of deaf bowling records: first deaf woman (internationally) to bowl a 300 game at the age of 19 and a 700 series (710) at the age of 17; first deaf woman to obtain coach-instructor certificate; first and only deaf woman to bowl an all-events score of 1917 (213 average) in WIBC tournament; currently holds a lifetime total of twenty 700 series and is averaging 214 in one league with 289 high game and 731 series. Decker is currently a student at Penn State University.

SLO-PITCH Softball

The 17th annual men's and 6th annual women's slo-pitch softball tournaments were held September 23-27, 1992, at Miller's Woods, Overland Park, KS. Further information concerning the tournament may be obtained from the host, Olathe Club for the Deaf, Inc., PO Box 302, Olathe, KS 66061.

SOI

Unified Basketball Tournaments Draw Crowds

On Friday, March 27, Indiana Special Olympics hosted its first High School Unified Basketball Championship. This initiative, taken to increase the level of Special Olympics participation in schools, combines Indiana's love of high school basketball with the increasingly popular Unified Sports program.

In an overwhelming turn out, 58 teams from across the state participated in the tournament. This championship was supported by an advisory committee composed of individuals representing the Directors of Special Education, The High School Athletics Association, secondary school principals, Special Olympics facilities, and athletic directors.

Three teams from Evansville's Central High School attended the competition. Each of the teams was coached by a member of the Varisty Football coaching staff and many of the team's players were recruited to play on the Evansville Unified teams by Head Football coach Mike Owen.

The event was described by Indiana Special Olympics Executive Director Dennis Schmidt. "The only thing more exciting than the response to this first-year program is the potential for growth in future years."

Halfway across the country, Connecticut Special Olympics hosted their second annual Interscholastic Unified Basketball Championships, March 26. This year's tournament included championships in cross-country and volleyball. The event also featured a VIP reception for school officials, opening ceremonies, awards ceremonies, and recreational events.

1993 World Winter Games

The fifth Special Olympics World Winter Games for athletes with mental

retardation will be the largest winter sports event in the world in 1993. These games will be the first Special Olympics World Games to leave North America. They will be held in Schladming and Salzburg, Austria, March 20-27, 1993. The Executive Director is Dr. Peter Pilsl, Director of Sports for the Province of Salzburg. Sports included will be alpine skiing, cross-country skiing, floor hockey, figure skating, and speed skating.

Team USA Coaches

The U.S. Chapters Oversight Committee, along with the Winter Sports Department, and the U.S. Chapters Department, are pleased to announce the coaches for 1993 Team USA. The coaches were selected from over 150 applications. Special Olympics International wants to congratulate the following coaches: Alpine skiing: Robert DuRee, California; Randall Burkhardt, Colorado; Kathy Chandler, Massachusetts; Susan Kissinger, Michigan; Scott Helmes, Minnesota; and Meeche White, Utah; Nordic skiing: Carol Shiery, Arizona; David Waite, California; Ken Garber, Massachusetts; Carol Schneider, New York; Dean Glaze, Wisconsin; Susan Ward, Oregon; Figure skating: Betsie Spisak, Colorado; Lynn Thompson, Georgia; Eleanor Fraser, Minnesota; Linda Hildebrand, Pennsylvania; Speed skating: Michael Kading, Illinois; Barbara Andrews, Massachusetts; Gregory Oly, Minnesota; Douglas Cramer, New York; Angie Krumreich, Virginia; Kurt Krumreich, Virginia; Floor hockey: Howard Murray, Colorado; Grant Hammack, Georgia; Paula Nargi, Massachusetts; Sara Daggett, New York; Vincent Amadio, Pennsylvania; John Langel, Pennsylvania.

USCPAA

Alumna Award

Sue Moucha, an athlete with cerebral palsy, received the Distinguished Alumna Award, spring (1992) from Texas Woman's University where she received her MA in Physical Education. With over 55,000 graduates, only 76 have been named Distinguished Alumna. Sue was also invited by the president of the International Olympic Academy to be an assistant and to present an article she wrote, ***The Disabled Female Athlete as a Role Model***, at the 32nd International Session held in Olympia, Greece, in June, 1992.

Multi-Sport National Championship

The United States Cerebral Palsy Athletic Association (USCPAA) is now accepting proposals from organizations interested in hosting part or all of the 1993 National Championships. USCPAA's multi-sport national championships involve competition in 14 different sports held over a 5- to 7-day schedule. USCPAA and its Sports Technical Committee have decided to consider dividing the national championships into several competitions if appropriate bids are received from organizations interested in hosting small national events. This philosophy will meet USCPAA's need to begin hosting individual sport championships in each of its 14 sports by 1994.

Designated local organizing committee(s) will work hand in hand with USCPAA's Sports Technical Committee and the national office in the planning and implementation of the national event. Additional assistance with securing resources necessary to host the competition for up to 750 athletes and staff will also be provided. Organizations interested in bidding on the national championships should contact the National Office for a complete bid packet at 34518 Warren Road, Suite 264, Westland, MI 48185.

TAC Indoor Nationals

Five athletes participated in a 60 m race, representing USCPAA in Madison Square Garden at the TAC Indoor Nationals. This race was one of three that allowed athletes with disabilities to showcase their talents alongside able-bodied athletes. Special Olympics and amputee athetes representing National Handicapped Sports (NHS) also held their own races. Once again, Tom Dietz (Class 8-Selden, NY) won the 60m race with a time of 8.34 which was 7/100 off his last year's time. Freeman Register (Class 6-Starke, FL) surprised some with a good start coming in second in 8.81. He was followed by Eric Steinback (Class 6-Derby, KS), who ran 9.01; Greg Taylor (Class 7-Tampa, FL) with a 9.26; and Mike LaCasse (Class 6-New Britain, CT) in 9.71. The five young men represented USCPAA very well, increasing exposure to the able-bodied athletic world.

USLASA

Competitive Opportunities

United States Les Autres Sports Association (USLASA) athletes should know that they are welcome to participate in any of the National Handicapped Sports (NHS) sponsored regional and national competitions. For more information regarding these, contact the NHS Program Service Office, 3593 East Fountain Blvd., Suite I-1, Colorado Springs, CO 80910. (719) 57-4136. The Michigan CP/LA Sports Association offers extensive competitive opportunities to USLASA athletes, as do many United States Cerebral Palsy Athletic Association (USCPAA) sports programs. For more information contact USCPAA. USLASA is looking toward another national competition in 1993. Persons or organizations wishing to assist with this project, or wanting to be considered as a host site should contact Dave at the National Office.

Development of the national structure for service provision to USLASA athletes has been slow, due to limited funding and political instability of the other DSOs (Disabled Sports Organizations). The outlook has improved and USLASA anticipates renewed development this year. Anyone interested in serving on the national board or service committees should contact the National Office. Finally, USLASA wishes to congratulate its representatives on the United States Disabled Sports Team who competed in the Barcelona Paralympics—Athletics: Steve Welch, Kathleen Winter, Jackie Wulftange; Cycling: Matthew Kutt; Swimming: Peter Foote, Mildred Giovanni, Steve Scott, and James Rutherford; Table Tennis: Andre Anderson and Norman Haase.

USLASA National Office: 1101 Post Oak Blvd., Suite 9-486, Houston, TX 77056. (713) 521-3737.

APAC ACTION

New Developments

There are many exciting happenings occurring in the professional area of adapted physical activity. These changes are positive steps forward which should improve availability and quality of services for persons with disabilities. One outstanding step forward is the development of national standards in adapted physical education that will lead to a certification. This professional thrust is headed by Dr. Luke Kelly, University of Virginia, with the cooperation of the National Consortium for Physical Education and Recreation for Individuals with Disabilities. Kelly initially received start-up funding for this work through APAC. He also received a federal grant for a four-year project through the Office of Special Education Programs, U.S. Department of Education. An overview of this project will be presented at the annual AAHPERD meeting, March, 1993, in Washington, DC. Persons interested in assisting with this project should contact: Luke Kelly, University of Virginia, 405 Ruffner Hall, Curry School of Education, Charlottesville, VA 22903.

Call for Nominations for APAC Officers

Nominations are being sought for all officers of APAC for the coming year. The officers to be elected include: president-elect; secretary (two-year position); member-at-large. Nominations should include a brief resume (one-two pages) of past professional experiences and should be directed to Ron Davis, School of HPER, Ball State University, HP 222-D, Muncie, IN 47306-0270. Nominations are due by January 15, 1993.

Call for Nominations for APAC Awards

Nominations are being sought for the Professional Service and Student Awards. Criteria for recipients are outstanding service on the local, state, and/or national levels in adapted physical activity. The purpose of these awards is to recognize exemplary contributors to the profession. Recipients will be announced at the annual AAHPERD meeting in Washington, DC, March, 1993. Nominations should include the nominee's resume and a letter of nomination. Mail to Diane Craft, PO Box 1827 N. Eastham, MA 02651-1827 by January 15, 1993.

Research Task Force

A research task force has been formulated by the members of APAC with a charge to: (a) develop a method of soliciting from the field, problems to be investigated; (b) develop procedures for informing the research community of these needs; (c) develop a method for evaluating proposed research projects to be recommended for funding; and (d) develop a method for disseminating results of such research to interested groups. This task force is being headed by Carol Pope, Department of Physical Education, Texas Christian University, PO Box 32901, Fort Worth, TX 76129. Persons interested in assisting this task force should contact Dr. Pope.

Survey Results

Cathy Bryan and Luke Kelly, University of Virginia, utilized resources provided by APAC to survey professionals regarding the *Adapted Physical Education Needs Assessment.* It was designed to determine whether persons providing physical education to students with disabilities were satisfactorily trained during their teacher training programs. A nation-wide survey, covering a total of six districts, was developed by a joint committee composed of members of the American Alliance for Health, Physical Education, Recreation and Dance's Adapted Physical Activity Council and the National Consortium on Physical Education and Recreation for Individuals with Disabilities. This instrument was the initial step in the process of developing national standards for the field of adapted physical education.

Four hundred ninety-one members were randomly selected from the APAC membership. A response rate of 44% was achieved with 10% of those returned unanswered; therefore, an adjusted final response rate was 34%.

The research committee is currently in the process of performing a series of statistical analyses and will report those finding in the near future. For more information on this project please contact Luke Kelly, Curry School of Education, 405 Ruffner Hall, University of Virginia, Charlottesville, VA 22903.

__APAC Action__ offers the Adapted Physical Activity Council of the American Alliance for Health, Physical Eduction, Recreation and Dance an opportunity to disseminate timely information about its programs to both APAC members and __Palaestra__ readers. __Jeff McCubbin__, Oregon State University, is editor of __APAC Action.__

COSD FORUM

COSD Forum: Athletes with Disabilities & Leadership Roles

Since the enactment of the Amateur Sports Act (PL 95-606) of 1978, the United States Olympic Committee (USOC) has significantly increased its involvement with athletes with disabilities. Although this involvement has been primarily focused upon sport participation and competitions for athletes with disabilities, as well as in selected educational and coaches training programs, a by-product has been the increased participation of individuals with disabilities in leadership positions and the overall governance of disabled sport in the United States, including the USOC.

For as many years as international and national disabled sport associations have existed, individuals with disabilities have actively participated in the governance of sport for the disabled. Although most of these individuals have been men with disabilities, a few women have moved into leadership roles as well. Primarily, disabled athletes or former athletes are found in the top leadership positions in almost all of the Disabled Sport Organizations (DSOs). Organizations such as the American Athletic Association of the Deaf (AAAD), Dwarf Athletic Association (DAAA), and National Handicapped Sports (NHS) are administered almost entirely by individuals with disabilities.

Currently, the leadership positions (volunteer not staff) for sport for the disabled within the USOC are entirely composed of athletes (or former athletes) with disabilities. Rod Hemley is chair of the COSD and Duncan Wyeth represents athletes with disabilities on the USOC Board of Directors. In addition, Jack Benedict (formerly from NHS and a COSD member) is employed with United States Skiing Association (USSA) to oversee the U.S. Disabled Ski Team and disabled skiing as part of USSA activities. From an historic perspective, Kathryn Sallade (formerly of AAAD) served as the first chair of the Committee on Sports for the Disabled from 1979-1980.

Generally speaking, leadership positions for women, including representation of women within the Olympic Sport movement, have been limited. A similar phenomenon has been found in sports for the disabled for both individuals with disabilities and women. In a survey conducted in 1990 by the USOC Task Force on Women, on the average, female representation on USOC committees was 27.3% and 15.4% for individuals with disabilities representing sport. As part of its purpose to increase the participation of women in the Olympic movement, this Task Force on Women attempted to identify liaisons for each USOC member organization (NGBs, Affiliated Sport Organizations, Educational and Community Based Organizations, Disabled Sport Organizations). As is noted, the Disabled Sport Organizations were included in this effort to increase not only female participation in the USOC, but increase opportunities for women with disabilities as well.

Even though the Task Force on Women has not been as active as initially desired, the DSOs selected their representatives to the Task Force. The following individuals were identified to serve as DSO liaisons: Rosanna Copeland (USABA), Shirley Platt (AAAD), Erika Palmer Rogers (DAAA), Jamy Black McCole (USCPAA), Debi Meade (NHS), Jan Wilson, (formerly USAAA), and Paul DePace (NWAA). With increased activity of the USOC Task Force for Women, these individuals will become instrumental in increasing women's involvement within the USOC.

Of note here is the attendance of Sue Moucha at a recent United States Olympic Academy Congress, her participation in the International Olympic Academy (IOA) in Greece, and subsequent invitation by the IOA to return as a speaker the following year. (All interested persons are invited to attend the annual U.S. Olympic academy. Announcements of the USOA are made through USOC publications. Attendance at the USOA is prerequisite to IOA attendance.) Increased visibility and participation at Olympic Congresses and Academies have led to greater involvement of individuals with disabilities in leadership positions in the USOC.

In 1991, the National Association for Girls and Women in Sport received a grant from the USOC for *Leadership Development in Sport for Women Through the Olympic Movement.* This project spans a four-year timeline beginning with a leadership conference in summer, 1992, state and NGB conferences during 1992-1993, and ends with planning for a 1996 conference preceding the 1996 Olympic Games. Interested individuals should contact NAGWS, 1900 Association Drive, Reston, VA 22091.

__COSD Forum__ is a regular feature of __Palaestra__ which keeps the reader informed as to happenings of the United States Olympic Committee's (USOC) Committee on Sports for the Disabled (COSD). __Karen DePauw, Washington State University,__ is the Department Editor.

RESEARCH APPLICATION

Aerobic Fitness Benefits from Participation in Wheelchair Sports

Introduction

Wheelchair sports were initially developed as part of the rehabilitation program for injured soldiers during World War II. The number of sports available to wheelchair users has grown since this early development, and regular particiation in these activities is considered part of the more healthy, active lifestyle of wheelchair dependent individuals. Potential aerobic fitness benefits of regular participation in some of these activities, however, need to be established in order to provide guidance for participants.

The Study

Relative stress of participation in wheelchair basketball, volleyball, tennis, and racquetball was determined by monitoring the heart rates of participants during at least 10 min of *game* or *practice* conditions. Individuals who were regular participants in these activities consented to serve as subjects, and all subjects were paraplegics with lesions below T5 or equivalent disability with no evidence of impaired cardiovascular control.

Results

Average heart rates of the participants were 149 beats per min for basketball game conditions, 135 for racquetball game, 129 for basketball practice, 127 for tennis game, 114 for volleyball game, 107 for volleyball practice, 96 for racquetball practice, and 89 for tennis practice. The percentage of time when the average participant's heart rate was above 140 beats per min, (an estimate of the heart rate needed for an aerobic training effect) ranged from 62% for basketball game conditions to 0% for racquetball practice. Activities that elicited a heart rate greater than 140 beats per min for at least 25% of the time in at least one subject included the basketball game and practice, racquetball game, and tennis game conditions. Thus, one hour of participation in these activities could provide at least 15 minutes of activity at a heart rate deemed appropriate to elicit an endurance training response. Individual variation in skill level and/or intensity of effort by the participant, however, would affect any potential training benefit of the activity.

Teaching/Coaching Implications

Participation in wheelchair basketball, racquetball, and tennis games have the potential to impose an endurance training effect. Conversely, participation in these activities at a reasonable level of intensity requires a sound aerobic fitness base. Some initial aerobic training programs may be desirable for individuals with low endurance which would permit them to more beneficially participate in these activities.

Complete Details

Coutts, K.D. (1988). Heart rates of participants in wheelchair sports. ***Paraplegia***, 26, 43-49.

Cardiorespiratory and Perceptual Responses Using Handrims of Various Size in Male Paraplegics

Introduction

There have been numerous research efforts quantifying exercise responses and cardiorespiratory fitness levels of persons with lower-limb disabilities. However, no one testing modality has surfaced as an accepted standard. Instrumentation such as arm crank ergometer, wheelchair ergometer, wheelchair roller systems, and wheelchair treadmill have provided some empirical data, but have also complicated the process of comparing physiological responses among investigations.

During the 1970s interest and participation in wheelchair track and roadracing events grew in popularity. By 1980, previous restrictions imposed by the National Wheelchair Athletic Association (NWAA) upon racing wheelchair designs were relaxed, permitting extensive modifications of racing equipment. The question surfaces as to what contribution wheelchair design variables make to improved performance times.

The Study

The purpose of the present investigation was to determine effects of 10 in. (0.25m) and 16 in. (0.41m) wheelchair handrims upon cardiorespiratory and perceived exertion during wheelchair propulsion at selected velocities.

Subjects were 15 asymptomatic male paraplegics with a mean age of 27 years who performed three discontinuous exercise tests (ACE=arm crank ergometer; WERG=wheelchair roller ergometer) and two 1600m performance-based track trials (TRACK) under simulated race conditions.

Results

There were no significant differences in heart rate between the 10 in. and 16 in. handrims during loadless 4 $km \cdot h^{-1}$, weight bearing 4 $km \cdot h^{-1}$, 8 $km \cdot h^{-1}$, or during maximal effort.

Although not statistically significant, submaximal oxygen consumption using the 10 in. handrim was 9%

lower than the 16 in. handrim at 4 km•h^{-1}. However, there were significant differences at 8 km•h^{-1}. During wheelchair propulsion, VO_2 for the 16 in. handrim was 13% higher than the 10 in. handrim.

Likewise, there were no significant differences in expired ventilation at loadless 4 km•h^{-1}, weight bearing 4 km•h^{-1}, or maximal effort. However, at 8 km•h^{-1}, expired ventilation was significantly higher using the 16 in. handrim by 23%.

Similar to previous metabolic variables, there were no significant differences during loadless pushing and weight bearing propulsion at 4 km•h^{-1}. However, like oxygen uptake and expired ventilation, lactate was 56% higher at 8 km•h^{-1} for the 16 in. handrim. Although there were no significant differences during loadless pushing, weight bearing propulsion at 4 km•h^{-1}, and maximal effort for central, peripheral, or integrated cues of perceived exertion, there were statistically significant lower differences at 8 km•h^{-1} for the 10 in. handrim.

Like 4 km•h^{-1} and maximal effort there were no significant differences in metabolic variables or performance time during the track performance test using 10 and 16 in. handrims. However, post-exercise fingertip lactates were found to be significantly greater when using larger handrims.

Similar to cardiorespiratory data, RPE ratings did not indicate any statistically significant differences.

Teaching/Coaching Implications

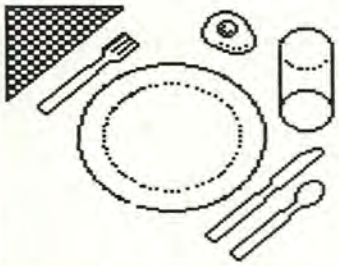
- It appears at normal ambulatory pace, handrim size is of little importance.
- Authors conclude that the 10 in. handrim is more appropriate during continuous recreational or sport activity.
- Proper biomechanical techniques utilized during maximal exercise need to be emphasized.
- Relative to the 1600m performance event, more elite wheelchair subjects are necessary.
- Handrim size may be anatomical and event specific.

Complete Details

Gayle, G.W., Davis, G.M., Pohlman, R.M. & Glaser, R.M. (1990). Cardiorespiratory and perceptual responses to arm crank and wheelchair exercise using various handrims in male paraplegics. ***Research Quarterly for Exercise and Sport, 61,*** (3) 224-232.

*The **Research Application** section appears as a regular department of Palaestra. Emphasis is placed upon results of studies and their implications for teaching and/or coaching. Studies are indexed in **Sport Search, Physical Education Index, Current Index to Journals in Education, Health Index, Physical Education Index** and Information Access Company's **Health Periodicals On-Line Database.** Authors interested in contributing to this section should contact **Paul Bishop,** Special Education, Kearney State College, Kearney, NE 68849-0507. (308) 234-8335.*

The Slow Metabolism Woes



I eat less than my teammates, but I still don't lose weight. There must be something wrong with my metabolism. . . I maintain weight on only 1,000 calories per day. I want to lose a few pounds, but I can't imagine eating any less. . . I work out at least two hours every day and eat only one meal a day. I can't understand why I don't lose weight. . .

Frustration with inability to lose weight abounds among athletes, particularly female athletes, who claim they have a slow metabolism and eat less than they *deserve* given their rigorous daily exercise regimen. One active woman tearfully complained about this inequity. She tried so hard to lose weight, reportedly ate only 1,000 calories per day and yet maintained her weight. Her exercise partner, in comparison, ate twice as much at meals.

What is going on here? Is it true that some athletes are *energy efficient?* That is, they efficiently utilize every calorie that enters their body, hence maintaining weight on fewer calories than the athlete who more wastefully or unproductively burns them? According to Dr. Jack Wilmore, exercise physiologist at the University of Texas at Austin, the energy efficient athlete does *not* exist. Speaking at the annual convention of SCAN, the Sports and Cardiovascular Nutrition division of the American Dietetic Association, Dr. Wilmore reported his studies (***Journal of Applied Physiology,*** January, 1992) which show that metabolic rate is closely tied to muscle mass. "Plain and simple, athletes who have well developed muscles require more calories than those who have less muscle."

Using new fool-proof techniques that account for every calorie a person burns, Dr. Wilmore along with Leslie Schultz have done extensive metabolic studies on athletes who claim to conserve energy. Much to their surprise, they found that those who claim to eat very little do indeed eat what they require, sooner or later. He found that when energy efficient athletes were carefully monitored for several days, they lost weight when they ate what they reported was their typical diet. That is, the runner who recorded eating only 1,700 calories per day (but required 2,300 calories/day) consistently lost a predictable amount of weight when she ate her self-proclaimed diet.

How can this be? Both anecdotal reports and research studies have lead to the belief that some athletes, particularly amenorrheal females, eat at least 300-500 fewer calories than expected. The discrepancy seems related to food records: people who keep food records often consume about 20% fewer calories than usual. Findings in the previous energy efficiency studies were based on food records. The athletes either under reported what they ate for the typical three-day span of the study, or else changed what they ate during the study. That is, instead of having to *confess* eating cookies or candy bars (@ 300 calories), they would be more likely to choose a nutritious apple (@ 100 calories) or nothing. Unfortunately, previous researchers neglected to weigh subjects while monitoring their food intake; hence, they overlooked the weight loss that simultaneously occurred.

If you perceive yourself as having a slow metabolism and being energy efficient, you probably challenge the findings of this research; however, please consider the following:

• **Do you strictly diet for two or three days in a row, then splurge on the fourth day?** Or restrict food Monday through Friday and over-indulge on the weekends? If so, you might want to distribute the calories more evenly. One woman enjoyed better energy plus weight loss from eating 1,700 calories every day (11,900) calories/week), instead of 1,200 calories Monday through Friday and 3,000+ calories on the weekend (12,000+ calories/week). Plus, she lost the desire to splurge on the weekends since a deep hunger no longer haunted her.

• **Do you *diet* at breakfast and lunch, only to *blow it* at night when your attempts to eat a meager 1,000 calories/day get lost to the hungry horrors?** When you get *too* hungry, you can easily lose any sense of control over your food intake and over-eat *the whole thing* within a blink of the eye and a smack of the lips!

• **Perhaps you snitch more calories than you acknowledge.** It is amazing how quickly those crusts of bread from your kids' sandwiches add up, as do the carrots that never quite make it into the salad as you make dinner, or the broken pieces of cookies that pop into your mouth.

• **Do you underestimate the amount of calories you eat?** One dieter who limited herself to apples and carrots failed to recognize that each apple (the biggest one she could find) was *at least* 150 calories. . .and that each carrot (also the biggest) was *at least* 50 calories. She easily consumed 1,200 calories of apples and 400 calories of carrots each day. She had credited those foods as being *free.* She certainly fooled herself!

Since calorie needs are closely related to muscle size, the best bet to increase your calorie intake without getting fat is to bulk up your muscles. Start lifting weights! You also might want to get an appropriate food plan from a sports nutritionist so that you can enjoy a satisfying diet rather than an erratic one that leaves you feeling denied of one of life's pleasures—food! To find a local sports nutritionist, call 1-800-366-1655 (American Dietetic Association).

***Sport Nutrition** is a regular department of **Palaestra** which addresses issues and answers questions sports-active people of all ages and abilities ask about high energy, healthful eating, and offers a scientific approach to eating for top performance, as well as the practical how-to approach which includes specific food suggestions.* ***Nancy Clark,** Director of Nutrition Services for SportsMedicine Brookline, Brookline, MA, and author of **Nancy Clark's Sports Nutrition Guidebook** is the Department Editor.*

CALENDAR OF EVENTS

*The **Calendar** is a service of **Palaestra** to all organizations and institutions interested in sport, physical education, and recreation for persons with disabilities. Items of interest to athletes, coaches, and professionals in the field are listed without charge. Please submit items in the above format four months in advance to **Robert W. Arnhold**, Physical Education Department, Slippery Rock University, Slippery Rock, PA 16057. (412) 738-2847.*

CAMPS AND CLINICS

January 1-31
Semester Break Ski Training Camp, Winter Park, CO. Contact: Paul DiBello, Director, NDASTC, PO Box 36, Winter Park, CO 80482. (303) 726-5514.

January 6-8
Learn To Race Ski Clinic, Windham, NY. Contact: Disabled Ski Program, Ski Windham, Windham, NY 12496. (518)-734-5070.

January 7-10
Courage Alpine Skiers Learn to Ski Clinic, Bloomington, MN. Contact: Kristi Youngquist, Courage Center, 3915 Golden Valley Rd., Golden Valley, MN 55422. (612) 520-0495.

January 16-21
Everglades by Kayak, Florida. Contact: Tracy Fredin, Wilderness Inquiry, 1313 Fifth Street SE., Box 84, Minneapolis, MN 55414-1546. (800) 728-0719.

January 24-31
Everglades by Kayak, Florida. Contact: Tracy Fredin. (See January 16th).

February 2-7
Everglades by Kayak, Florida. Contact: Tracy Fredin. (See January 16th).

Boundary Waters Dogsled Loop, International Falls, MN. Contact: Tracy Fredin. (See January 16th).

February 10-15
Everglades by Kayak, Florida. Contact: Tracy Fredin. (See January 16th).

February 17-21
USABA Elite Alpine Ski Camp, Durango, CO. Contact: Steve Kearney, Box 309, Parkview School, Muskogee, OK 74401. (918) 682-6641.

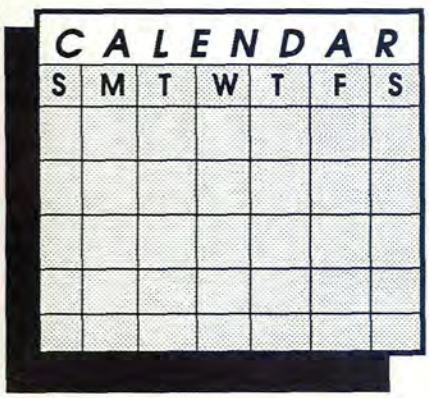
March 2-7
Boundary Waters Dogsled Loop, International Falls, MN. Contact: Tracy Fredin. (See January 16th).

March 12-21
***Hail Mary* Ski Camp, Winter Park, CO.** Contact: Paul DiBello. (See January 1st).

March 28-April 2
National Veterans Winter Sports Clinic, Crested Butte, CO. Contact: Sandy Trombetta, VA Medical Center, Grand Junction, CO 81501. (303) 242-0731.

April 3-10
Kayak Lake Powell, Glen Canyon Nat'l Recreation Area, UT. Contact: Tracy Fredin. (See January 16th).

April 17-24
Kayak Lake Powell, Glen Canyon Nat'l Recreation Area, UT. Contact: Tracy Fredin. (See January 16th).



COMPETITIVE EVENTS

Amputee

January 8-9
NHS Regional Qualifying Race, Windham, NY. Contact: Ski Windham Adaptive Race Program, Windham, NY 12496. (518) 734-5070.

January 30-31
NHS Regional Qualifying Race, Sunapee, NH. Contact: NHS, 3595 E. Fountain Blvd. #I1, Colorado Springs, CO 80910. (719) 594-4136.

February 5-7
18th Annual First Interstate Bank Cup, Winter Park, CO. Contact: Paul DiBello, National Sports Center f/t Disabled, PO Box 36, Winter Park, CO 80482. (303) 726-5514.

February 13
NHS Regional Qualifying Race, Sugarbush, VT. Contact: NHS. (See January 30th).

February 26-28
Columbia Crest Cup, Winter Park, CO. Contact: Paul DiBello. (See February 5th).

March 6-7
NHS Regional Qualifying Race, White Tail, PA. Contact: NHS. (See January 30th).

March 12-14
Eastern Regional Ski Finals, Waterville Valley, NH. Contact: NHS. (See January 30th).

Blind

February 21-28
Ski For Light, Brainerd, MN. Contact: Celest Lopes, 25 Helen Avenue, Plainview, NY 11803. (516) 935-4670.

March 21-28
30th Anniversary Norwegian Ridderrennet, Beitostolen, Norway. Contact: Bud Keith, 737 N. Buchanan St., Arlington, VA 22203. (703) 528-4455.

Deaf

March 4-6
SWAAD 46th Annual Regional Basketball Tournament, Memphis, TN. Contact: Doris Walker, 1019 Rozelle St., Memphis, TN 38114. (901) 274-8249.

Continued on following page

SEAAD 47th Annual Regional Basketball Tournament, Staunton, VA. Contact: Dianne V. Stenz, PO Box 801, Staunton, VA 24401. (703) 885-7379.

CAAD 48th Annual Regional Basketball Tournament, Flint, MI. Contact: Ted Leonard, 4156 Holiday Dr., Flint, MI 48507. (313) 231-3112.

MWAAD 48th Annual Men's/6th Women's Regional Basketball Tournament, Oakland, CA. Contact: Easy Bay Club of the Deaf, PO Box 74, San Leandro, CA 94577.

March 24-28
AAAD 49th National Basketball Tournament, New Orleans, LA. Contact: Anthony Aramburo, 3037 Dauphine St., New Orleans, LA 70117.

April 23-25
NRAD 10th Annual National Racquetball Tournament, Palatine, FL. Contact: Steve Horwich, PO Box 3712, Oakbrook, IL 60522. (708) 679-8106.

Great Lakes Deaf Bowling Tournament, Cleveland, OH. Contact: Cleveland Association of the Deaf, 1381 W. 6th St., Cleveland, OH 44113.

May 27-30
Pacific Coast Deaf Bowling Association Tournament, Irvine, CA. Contact: A. David Freedman, 21014 Chase St., Canoga Park, CA 91304. (818) 882-7824.

June 12-14
CAAD 17th Annual Regional Volleyball Tournament, Flint, MI. Contact: Merrill Frelich, 4156 Holiday Dr., Flint, MI 48507. (313) 231-3112.

July 24-August 2
CISS Summer World Games f/t Deaf, Sofia, Bulgaria. Contact: AAAD National Office, 3791 Harrison Blvd., Ogden, UT 84403-2040.

Mentally Handicapped

January 29-31
Wisconsin Winter Games, Wausau, WI. Contact: Bill Vickroy, 5900 Monona Dr. #301, Madison, WI 53716. (608) 222-1324.

February 6-7
Oregon Sports Classic, Salem, OR. Contact: Ken Dale, OSO, 3325 NW Yeon Ave., Portland, OR 97210. (508) 248-0600.

February 22-25
Arizona Winter Games, Flagstaff, AZ. Contact: Beth Sligh, ASO, 1525 W. University Blvd. #102, Tempe, AZ 85281. (602) 976-4762.

February 22-25
Massachusetts Winter Games, Lenox, MA. Contact: Leon Seymour, MSO, PO Box 303, Hathorne, MA 01937. (508) 774-1501.

March 19-21
Missouri Basketball Tournament, Blue Springs, MO. Contact: Chuck Smith, MSO, 1331-A Illinois, Joplin, MO 64801. (417) 782-0939.

March 20-27
1993 Special Olympics World Winter Games, Salzburg/Schladming, Austria. Contact: Tom Songster, SOI, 1350 New York Ave. NW, Suite #500, Washington, DC 20005. (202) 628-3630.

March 27
Oregon Ice Skating Competition, Clackamas, OR. Contact: Ken Dale. (See February 6th).

Oregon Winter Games, Bend, OR. Contact: Ken Dale. (See February 6th).

April 10-11
Massachusetts Spring Games, Worchester, MA. Contact: Leon Seymour. (See February 22nd).

May 13-15
Missouri Summer Games, Ft. Leonard Wood, MO. Contact: Chuck Smith. (See March 19th).

May 21-23
Oregon Summer Games, Eugene, OR. Contact: Ken Dale. (See February 6th).

June 10-12
Wisconsin Summer Games, Stevens Point, WI. Contact: Bill Vickroy. (See January 29th).

SPINALLY PARALYZED

January 7-15
U.S. Disabled Nordic Ski Team National Championships, Rumford, ME. Contact: Kendall Butts, PO Box 100 Park City, UT 84060. (801) 649-9090.

January 9-10
Silver Spokes Eightball Classic III, Phoenix, AZ. Contact: Randy Florez, 5037 W. Sierra Vista Dr., Glendale, AZ 85301. (602) 939-9025.

January 17
American Powerlifting Federation Disabled Bench Press Competition, Mooseheart, IL. Contact: Ernie Frantz, Frantz Sports Center, 60 S. Broadway, Aurora, IL 60505. (708) 892-1491.

January 22-24
5th International Wheelchair Rugby Tournament, Toronto, Canada. Contact: Pawel Zbieranowski, 47 Winding Ln., Thornhill, Ontario L4J 5H7, CANADA. (416) 396-6765/d or 886-1252/e.

January 28-30
Wheelchair Tennis Summer Open, Sydney, Australia. Contact: Stephen Myers, Tournament Coordinator, 9E 153 Bayswater Rd., Rushcutters Bay, 2011 NSW, AUSTRALIA. IO+02-361-3794.

January 30
Winter Mini-Meet, Canton, MA. Contact: Theresa Kelly, Massachusetts Hospital School, 3 Randolph St., Canton, MA 02021. (617)828-2440/388.

February 3-6
Australian Wheelchair Tennis Open Championship, Melbourne, Australia. Contact: Karen Clydesdale, AWTO Coordinator, Tennis Australia, Private Bag 6060, Richmond South 3121 Victoria, AUSTRALIA. IO+03-655-1177.

February 5-7
14th Annual Bluegrass Invitational Wheelchair Basketball Tournament, Lexington, KY. Contact: Diane Bonfert, Lexington-Fayette Cty. Dept. Parks and Recreation, 545 N. Upper St., Lexington, KY 40508. (606) 255-0835.

February 9-12
Wheelchair Tennis Open Championship, Christchurch, New Zealand. Contact: Shirley Smith, Unit 23, 415 Mairehall Rd., Christchurch 9, NEW ZEALAND. IO+64-3-383-2306.

February 14
River City 10-Miler, Austin, TX. Contact: John Ferguson, 3219 Oak Alley, Austin, TX 78745. (512) 282-4175.

February 18-28
3rd Wheelchair World Shooting Championships, Salinas, Puerto Rico. Contact: David Baskin, 102 Park Ave., Rockledge, PA 19111.

February 21-28
Ski For Light International, Brainerd, MN. Contact: Jeff Pagels, 1400 Carole Ln., Green Bay, WI 54313. (414) 494-5572.

February 26-28
Columbia Crest Cup, Winter Park, CO. Contact: Paul DiBello, National Sports Center f/t Disabled, PO Box 36, Winter Park, CO 80482. (303) 726-5514/158.

February 27
Gasparilla Distance Classic, Tampa, FL. Contact: Gasparilla Distance Classic, PO Box 1881, Tampa, FL 33601. (813) 229-7866.

March 7
Los Angeles Marathon, Los Angeles, CA. Contact: Susan Alger, City of Los Angeles Marathon, Los Angeles, CA. (301) 444-5544.

March 14-21
CIBC Disabled Ski Championships & Festival, Kimberley, BC. Contact: Jerry Johnston, Executive Director, CADS, Box 307,

Kimberley, BC V1A 2Y9, CANADA. (604) 427-7712.

March 20-21
Lillehammer Winter Sports Festival (Nordic Racing), Lillehammer, Norway. Contact: Kendall Butts. (See January 7th).

March 21-28
30th Anniversary Norwegian Ridderrennet, Beitostolen, Norway. Contact: Bud Keith, 737 N. Buchanan St., Arlington, VA 22203. (703) 528-4455.

March 26-27
45th National Wheelchair Basketball Tournament, Boston, MA. Contact: Stan Labanowich, NWBA, 110 Seaton Bldg., University of Kentucky, Lexington, KY 40506. (606) 257-1623.

April 1-4
Canadian Wheelchair Basketball Finals, Winnipeg, MB. Contact: CWSA, 1600 James Naismith Dr., Gloucester, Ontario K1B 5N4, CANADA. (613) 748-5685.

ALL DISABILITIES

February 26-28
Columbia Crest Cup/U.S. Disabled Alpine Ski Championships, Winter Park, CO. Contact: Paul DiBello, National Sports Center f/t Disabled, PO Box 36, Winter Park, CO 80482. (303) 726-5514/158.

August 8-21
Canadian Summer Games, Kamloops, BC. Contact: Canadian Federation of Sport f/t Disabled, National Sport Center, 1600 James Naismith Dr., Gloucester, Ontario K1B 5N4, CANADA.

CONFERENCES & WORKSHOPS

February 24-27
International Pre-Olympic Congress on Sport Medicine and Sport Sciences, Lillehammer Olympic City, Norway. Contact: Congress Secretariat, International Pre Olympic Congress on Sport Medicine and Sport Sciences, c/o NYCOMED PHARMA AS, PO Box 4284 Torshov, N-0401 1so 4, NORWAY. IO+47-2-226260.

March 24-28
AAHPERD National Convention, Washington, DC. Contact: Lysa Price, AAHPERD Director of Conventions, 1900 Association Dr., Reston, VA 22091. (703) 476-3400.

April 1-3
American Academy of Orthotists and Prosthetists Scientific Symposium, Las Vegas, NV. Contact: Karen Sardeson, AAOP, 1650 King St. #500, Alexandria, VA 22314. (703) 836-7118.

April 16-17
2nd Annual Achieving a Balance Conference on Adapted Physical Activity, Macomb, IL. Contact: David Beaver, Dept. Physical Education, Western Illinois University, Macomb, IL 61455. (309) 298-1332.

April 26-28
Midwest Symposium on Therapeutic Recreation, St. Louis, MO. Contact: MWSTR, University Extension Conference Office, 348 Hearnes Center, University of Missouri, Columbia, MO 65211. (314) 882-9512.

May 4-7
3rd International Medical Congress on Sports f/t Disabled, Quebec, Canada. Contact: Claude Lepine, IMCSD, FAM Inc., PO Box 8729, Ste Foy, Quebec G1V 4N6, CANADA.

May 14-20
VISTA '93, Jasper, Alberta, Canada. Contact: VISTA '93, Rick Hansen Centre, W1-67 Van Vliet Complex, University of Alberta, Edmonton, Alberta T6G 2H9, CANADA. (403) 492-3182.

May 19-20
Symposium on Head and Neck Injuries in Sports, Atlanta, GA. Contact: Earl F. Hoemer, Neuromuscular Diagnostic Service, 168 Franklin St., Braintree, MA 02184. (617) 848-4791.

June 10-12
44th Annual NATA Meeting and Clinical Symposium, Kansas City, MO. Contact: NATA, 2952 Stemmons Freeway, Dallas, TX 75247. (214) 673-6282.

June 17-20
ACEP National Conference, Indianapolis, IN. Contact: Michele Watson, Conference Director, ACEP, Human Kinetics, 1607 N. Market St., Champaign, IL 61820. (800) 747-4457.

June 24-28
AIESEP World Convention, Berlin, Germany. Contact: Gudrun Doll-Tepper, Freie Universität Berlin, Institut für Sportwissenschaft, Rheinbenallee 14, D-1000 Berlin 33, GERMANY. IO+49-30-824-37-31.

June 30-July 4
2nd International Congress of the ISHPES (Games of the World), Berlin, Germany. Contact: Gertrud Pfister, Institut für Sportwissenschaft der FU-Berlin, Rheinbanalle 14, D-1000 Berlin 33, GERMANY. IO+49-30-823-50-59.

August 4-7
9th International Symposium on Adapted Physical Activity, Yokohama, Japan. Contact: Secretariat 9th ISAPA, Yokohama Convention Service, Yokohama Excellent III 2F, 3-35 Minami Nakadori, Naka-ku, Yokohama 231, JAPAN.

August 18-22
36th ICHPER World Congress, Yokohama, Japan. Contact: Yoshiro Hatano, Tokyo Gakuegi University, 4-1-1 Nukui Kitamachi, Koganei City, Tokyo, JAPAN. IO+ 81-3-3257-9109.

Accessible Ropes/ Challenge Courses in Rehabilitation: Roads to the Community

by Christopher C. Roland

A visitor at a rehabilitation hospital ventures outside and first observes an elderly woman, physical therapist at her side, trying to balance on a **tilting platform**. Not far away a young man with a head injury, with his physical and occupational therapists, struggles to balance on **two rocking beams**, while a World War II veteran who is recovering from a stroke insists to his therapist that he be allowed to walk further along a **rope bridge**. Finally, a woman with a spinal cord injury attempts to keep her wheelchair on **two narrow beams**, her recreation therapist giving many words of encouragement.

The healing and recovery processes at rehabilitation hospitals throughout the United States are taking on new looks. Patients with head injuries, spinal cord injuries, strokes, and amputations are now experiencing some of their therapy sessions on *The Rehab Accessible Challenge System:* TRACS. Physical therapists, occupational therapists, recreation therapists, family therapists, and psychologists are learning how to work with their patients on innovative, perhaps revolutionary, indoor and outdoor equipment.

Five Line Bridge, adapted for nonambulatory patients.

The Outdoors as a Therapeutic Environment

Although patients can be challenged on portable indoor TRACS equipment (most appropriate in adverse weather), the outdoors creates a heretofore virtually untouched therapeutic environment. Until TRACS was developed, most therapy sessions, especially physical and occupational therapies, took place indoors. For patients who were used to spending time with outdoor interests prior to their injuries, immediate switch to a clinical indoor setting sometimes created special difficulties with patients' self-esteem, locus of control, and motivation. Thought of entering the physical therapy gym for 20 minutes of therapy on the parallel bars on a sunny day can be especially disheartening to those who were accustomed to feeling the wind in their faces while skiing, hunting, or simply walking. One basic premise to TRACS is simply, *why can't a patient and therapist work with specific goals outdoors?*

TRACS has given therapists opportunities to break the indoor therapy paradigm. Although some therapists feel awkward when they initially bring patients out to TRACS, they quickly become comfortable, especially with on-going training and practice. And once therapists observe patients' positive

Tire Traverse, early version.

Photos by Christopher Roland and Mark Corliss.

***Christopher Roland** has a background in special education and is currently president of Roland & Assoc., Inc., Keen, New Hampshire.*

bers of the families on TRACS equipment, many interactions occur. Most importantly, a comfortable and supportive environment is created allowing family members to surface and discuss sensitive issues. For example, a teenager with a physical disability was finally comfortable, after a few sessions on the challenge equipment, to confront his parents about needing to be more independent (Roland, Dunham, Hoyt & Havens, 1986). A certified family life educator in Massachusetts noted, "TRACS is by far one of the most powerful tools when working with family systems. A recent TRACS program that we have developed is for siblings. TRACS creates a unique safe environment in which brothers and sisters can share with their peers how it really feels to have a sibling with a disability."

Top, Scoot Bridge, early version; Left, Scoot Bridge, TRACS version; Right, Swinging Beams, early version of Rocking Tri-Beams.

reactions, any remaining concerns quickly fade away. One physical therapy assistant remarked, "[TRACS] is not focused on one specific population. We can adapt it for whatever disability the person has. We do a lot of self-esteem building and confidence work. It is especially helpful when working with those who we can't get motivated in regular therapy."

Physician Support

Success of TRACS can thus far be attributed to therapists willing to try something new with their patients. But certainly support of physicians has created an awareness that TRACS is simply not an ancillary therapy or diversionary technique, but a key therapeutic intervention that should be an integral part of most patients' day-to-day schedules. Some physiatrists, in fact, are so committed to the concept, they are now prescribing TRACS for patients. A physiatrist from New Orleans remarked, "Patients now have the opportunity to find themselves in challenging situations that better prepare them for the real challenges found in the community and at home."

TRACS is also having positive influences with family therapists, family educators, and social workers. By bringing together four or five family systems, and challenging all mem-

The Historical Development of Accessible Challenge Courses

There were, no doubt, various efforts in the 1970s to include people with disabilities on challenge courses. But one of the first documented efforts (Roland & Havens, 1982) was in 1977 at Camp Allan in Bedford, New Hampshire, a facility providing year-round programs for persons with physical disabilities. The camp had been awarded a federal grant to develop and implement **Project Torch**—an outdoor education inservice program for special education teachers. One group involved with the grant was a special education class from Derry, New Hampshire. The head teacher and teacher aides brought eight students to camp for introductory outdoor education activities. The day ended with students and teachers waiting for a bus that was late. As some of the children began to exhibit their periodic acting-out behavior, the head teacher, on an impulse, grabbed a climbing rope, some webbing, and a couple of carabiners. He then located a ladder, climbed to a branch approximately 15 ft. above ground, and set up a **tree climb**. Every student became extremely quiet and patiently waited for his/her turn. Thrity minutes later, the bus finally arrived—the children hopped into the bus enthusiastically sharing their experiences in the tree.

Camp director, Gary Robb, marveled at the change in behavior of these students, as well as their ability and risk taking propensity to climb the tree. In a few days he made the decision to include the **tree climb** as part of this summer camp program. A large platform was constructed in a white pine tree, a staff person hired and trained, and the program began. During that first summer more than 125 campers experienced the **tree climb** with the help of a special hoist system.

Next Steps

In 1980, a special educator (Chris Roland), psychologist (Tom Smith), recreation therapist (Mark Havens), adapted outdoor equipment consultant (John Galland), architect (Larry Orr)

"... From simple beginnings, design of accessible challenge events continued to be refined..."

and a staff member of the Minnesota Outward Bound School (now known as the Voyageur Outward Bound School) (Gordon Opel) met at Vinland National Center in Loretto, Minnesota, to develop health and fitness programs. One informal discussion centered on Camp Allan's tree perch program and whether more traditional **ropes courses** could be made accessible to persons with physical disabilities. Since some questions regarded appropriateness of high ropes elements, only low adaptations were initially considered.

During a two-week period this team brainstormed ideas and began experimenting with the construction of a few partially accessible elements. Using only hand tools and one battery-powered drill, a **tire traverse**, **scoot bridge**, and **inclined parallel balance beams** were constructed. Two of the professionals who used wheelchairs attempted the challenges with positive results.

From simple beginnings, design of accessible challenge events continued to be refined. The following is a chronology (with highlights) of this challenge course development process.

1977 — Camp Allan: The Tree Perch Program

Highlights: rated as one of the most exciting and popular activities. Campers with muscular dystrophy, cerebral palsy, and multiple sclerosis were able to climb a tree for the first times in their lives.

1979 — Minnesota Outward Bound: An Integrated Adventure

Highlights: Chris Roland and John Galland met and discussed various barriers that confronted persons with disabilities in their quest for challenge and adventure.

1980 — Camp Riverwood, Winchendon, MA: A Ropes Course Experience for Campers with Moderate to Severe Mental Retardation

Highlights: Many campers attempted low, as well as high elements with varying degrees of success (Frant, Roland & Schempp, 1982). Leaders began to realize need for elements that met needs of those with balance and coordination difficulties.

1980 — Vinland National Center: The First Accessible Challenge Course

Highlights: The course was very, very primitive, yet represented the foundation of accessible challenge. An initial training manual was published by Vinland, *An Introduction to Adventure: A Sequential Approach to Challenging Activities with Persons who are Disabled* (Roland & Havens, 1981).

1982 — Bradford Woods Outdoor Center, Martinsville, IN

Highlights: By this time, Gary Robb had migrated south to Indiana. From his experiences at Camp Allan in New Hampshire, he contracted for an accessible course. This course was a bit less primitive, but difficulties with nonadjustable **balance beams**, **floppy bridges**, and a wheelchair that would not stay on two cables created some frustrations.

1983 — Camp Kiwanis, Rhododendron, OR

Highlights: Next to a rushing river, this course proved to be much more accessible. Gym mats were used for the first time in the **Burma Bridge** with terrific results. **Parallel Web Beams** and the **Forbes Traverse Seat** were invented by Mark Havens and Chris Roland. However, parallel balance beams that could not be adjusted continued to be problems.

Top, Rocking Tri-Beams, TRACS version; Middle, Roller Run with elderly patient; Bottom, Wheelchair Rappel.

1985 — Massachusetts Hospital School, Canton, MA

Highlights: First attempt at integrating a challenge course at a rehabilitation hospital. Adjustable parallel balance beams were incorporated in the design, as well as an accessible **Swinging Log**.

1986 — Mansfield Public Schools, Mansfield, OH

Highlights: A course was designed to meet needs of students in Grades 6-8, including those with physical disabilities. Included was a **tree perch** program adapted from Camp Allan days.

1987 — Association for the Support of Human Services, Westfield, MA

Highlights: An accessible challenge course, installed in 1985, became a key program for a summer camp (Kamp for Kids), an after-school program, and family challenge program. Accessible indoor elements were developed by the Association's staff at a nearby facility.

1988 — National Park Service, Chesterton, IN

Highlights: Once reams of paperwork for approval were completed, a course was installed to meet needs of all students in Porter County.

With each course, level of accessibility increased, allowing more and more individuals with disabilities to participate. By the late 1980s this evolution included adaptations of some *traditional* ropes course events. Many organizations began to realize that even if just one person with a disability comes through the doors each year, it is reason enough to make a few elements accessible. This process of adapting existing traditional, nonaccessible courses will become increasingly evident as a result of the Americans with Disabilities Act (Havens, 1992).

TRACS in the Rehabilitation Hospital Setting

In November, 1989, an organization with numerous rehabilitation hospitals nationwide contracted to bring the Accessible Challenge Course to the hospital setting. Many changes were made; in fact, completely new designs needed to be created by consultant Don Rogers to meet unique needs of patients and therapists. Some of these needs included—

- installing equipment as close to the hospital as possible, allowing for easy in-out access to equipment;
- designing portable indoor equipment that could be easily stored in often-crowded physical therapy gym;
- designing equipment to be used by only one therapist with one or two patients;
- including familiar equipment (e.g., parallel bars);
- designing equipment to accommodate

Top, Inclined Ramp (steep!), electric wheelchair; Middle, Rogers' Balance Platform, indoor model; Bottom, Rocking Tri-Beams, co-treatment model for ambulatory patient; Left, Inclined Balance Beams, co-treatment model : two therapists and one patient.

a wide-range of disabilities and ages (including the geriatric population); and
- designing an interdisciplinary curriculum for physical therapists, occupational therapists, psychologists, recreation therapists, and family therapists/social workers.

Three Stories

The past three years have been especially exciting. Many people with disabilities have been *touched* by participating on some challenging equipment in the rehabilitation setting. Three brief stories follow.

Jim was a feisty former Marine who became excited when he saw the course for the first time. He shared with therapists that the equipment reminded him of some positive experiences when he was in the service. He knew how to do an event known as the **five line bridge** and was ready to do it. The therapist took his left side that did not function and the two walked together a few feet on the **rope bridge** (on mats). Jim was elated and insisted he wanted to continue. But the therapist felt he needed to stop, and that he could come out again later and move on in the sequence of going further and further along the bridge. Jim commented that he had really been down about his progress and that he felt he needed to see the psychiatrist, but the TRACS experience had really pushed him out of his slump. He said he could not wait to return to the course. Each day Jim told therapists how the TRACS experience helped him out of his depression. He kept telling his physical therapist, "Mark my words, I'm going to walk on that bridge alone—without mats—before I get out of this place!"

Susan, a young woman recovering from a stroke was engaged to be married. She came out to the course with her sister. Her goal was to eliminate the need for her cane before the date of her marriage. She was anxious to try as many events as possible. She negotiated the **Rogers balance platform**, the **five line bridge**, and **rocking tribeams**. She did not use her cane to do any of these events; her sister had tears in her eyes exclaiming that she had not imagined such progress could be possible in one month's time.

Rhoda, a 74-year-old former school teacher, was wheeled out to the course by her therapist to watch. However, as soon as she saw the equipment, she wanted to try one element. She put on her helmet and stated exactly what she wanted to have happen as she ascended **inclined parallel balance beams** with help from her physical therapist. She loved being in charge and had a wonderful experience. She then asked her therapist to find some sunglasses; therapists were simply amazed at the sight of one of their geriatric patients equipped as if she were headed for Mt. Everest! They were equally amazed at the fact that Rhoda not only ventured outside (she had refused many times prior to TRACS implementation), but actually participated on some equipment and smiled for the first time.

Above, Five Line Bridge, ambulatory patient; Below, Danny Ramps.

"... the many smiles and positive comments are definite clues indicating something out of the ordinary is happening in the rehabilitation world... Opportunities for challenge and adventure to practically any patient with any disability at any age have finally arrived."

Refining and Improving TRACS

Many therapists believe TRACS represents a major therapeutic innovation following the likes of Bobath and NDB training. Yet any innovation requires careful attention to detail in quest for refinement and improvement. Some refinements and improvements include training volunteers to help transport patients to outdoor TRACS equipment, as well as integrating additional pieces of indoor TRACS equipment into physical therapy gyms. Finally, plans are underway to include TRACS in physical therapy and occupational therapy programs at selected colleges and universities.

The evolutionary process for TRACS is relatively short considering changes that have taken place at a number of rehabilitation hospitals. Current research is being conducted to determine short and long term impacts TRACS is actually having on patients. Yet, the many smiles and positive comments are definite clues indicating something out of the ordinary is happening in the rehabilitation world. Opportunities for challenge and adventure to practically any patient with any disability at any age have finally arrived.

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A Review of Standards of Gradient: New Directions

by Gerard G. Lyons

"...ATBCB was charged with insuring compliance with the Architectural Barriers Act of August 12, 1968, investigating alternative approaches to a wide variety of barriers, identifying measures being taken to eliminate barriers, and establishing minimum guidelines and requirements for standards issued."

In 1973, The Rehabilitation Act (PL 93-112) was passed into legislation. PL 93-112, Sec. 502 established the Architectural and Transportation Barriers Compliance Board (ATBCB). ATBCB consisted of 11 members appointed by the President from the general public, five of whom were to be individuals with disabilities. Remaining members were heads or designees of executive level or higher from the following departments or agencies: Department of Health and Human Services, Department of Transportation, Department of Housing and Urban Development, Department of Labor, Department of the Interior, Department of Defense, Department of Justice, General Services Administration, Veterans Administration, United States Postal Service, and Department of Education.

ATBCB was charged with insuring compliance with the Architectural Barriers Act of August 12, 1968, investigating alternative approaches to a wide variety of barriers, identifying measures being taken to eliminate barriers, and establishing minimum guidelines and requirements for standards issued.

Philosophical principles expressed by those legislative acts served to illustrate two important historical milestones. First, the law established in writing the right to access and use of facilities. The historical change was a direct shift in philosophical thought and practical application. Secondly, including members within the ranks of ATBCB who were themselves disabled, put into law an underdeveloped notion that they, by nature of their practical experiences, might be qualified to serve in judging and advising on architectural barriers.

Prevailing practice in research and experimentation of human performances of individuals with physical disabilities have been to experiment using subjects with disabilities. Expected results were thought to bear direct relationships to needs of people with disabilities in general. Such relationships appeared to be obvious. The contradiction was that no single group can be expected to represent with any reliability, the larger population of people with disabilities. Therefore, one should not expect standards and/or guidelines based upon experimentation with only subjects with limited disabilities to offer accessi-

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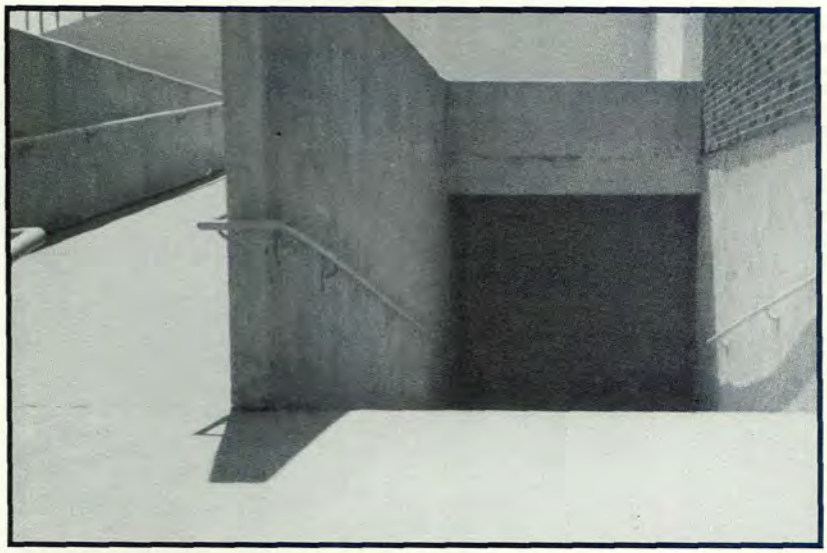
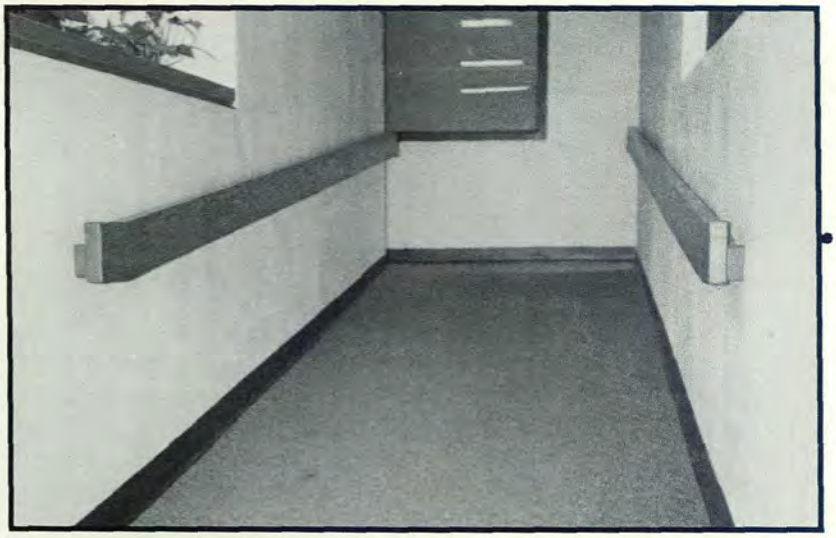
Editor's Note: Information on standards and much of the historical information was gleaned from various government documents. A list of the sources may be obtained from the author.





Top, Tunnel area below entrance to Health-Physical Education complex; Middle, An interior hallway within the Student Academic Services Building; Bottom, Entrance to Student Academic Services Building.

All photos taken by the author while on the physical education faculty at Eastern New Mexico University ; gradients met all Federal Guidelines.

Table 1
Borg's Rating Of Perceived Exertion Scale

6	
7	Very, Very Light
8	
9	Very Light
10	
11	Fairly Light
12	
13	Somewhat Light
14	
15	Hard
16	
17	Very Hard
18	
19	Very, Very Hard
20	

bility for all people with disabilities. Nor is it reasonable to expect, without proof, that standards should offer accessibility for all people, even those who are not classified as disabled.

The purpose of this article is not to suggest that individuals with physical disabilities be precluded from research designed to study human performances or establish standards for accessibility, but to share results of experimentation which incorporated several novel concepts designed to remedy preconceived notions and practices of making generalized standards for all people based on very specific subject samples. The following experimentation is thought to offer a new direction in research design. It is hoped future research and experimentation which may have the purpose of developing standards and guidelines for accessibility can utilize new directions presented here and advance them accordingly.

Perceived Exertion

Perceived Exertion (PE) was designed to discover how individuals react to certain work loads. For purposes of experimentation presented here, PE was viewed as the most efficacious method of determining individual responses to a variety of gradients. That decision was based upon several important research discoveries.

Original work on PE by Borg (1973) established that PE correlated in a fairly linear fashion with heart rates. Borg mentioned that even though methods were not reflective of true ratio scaling,

Top, Entrance to Chemistry Building. Notice level platform area midway up ramp for recovery area; Middle, Entrance to tunnel area of Health-Physical Education Complex; Bottom, Ramp and walkway area to Student Union Building.

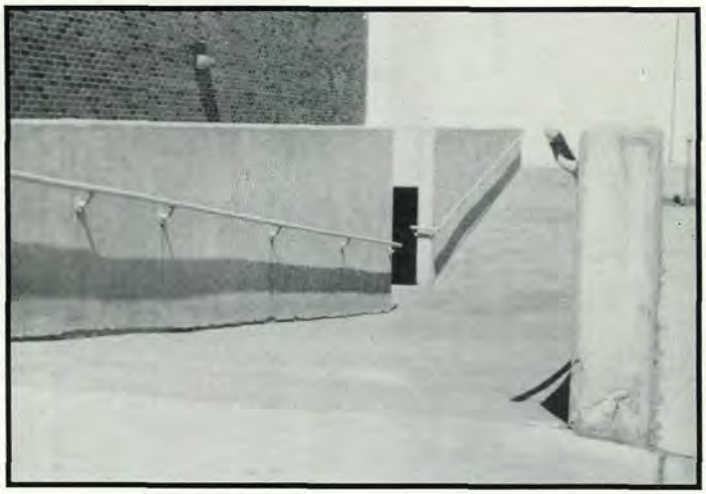


Table 2
Perceived Exertion

	Rise-Ft/Run-Ft			
Slope (ft)	1/20,600	1/20.5	1/15	1/12
PE Wheelchair	9.00	12.83	14.83	16.33
PE Walk	7.16	8.00	9.16	10.00

Table 3
Mean Heart Rates

	Beats Per Minute			
Slope (ft)	1/20,600	1/20.5	1/15	1/12
Heart Rate Wheelchair	69.33	91.30	96.00	102.00
Heart Rate Walk	72.60	82.60	83.30	84.60

they were "good enough for rough empirical descriptions of the general variation of perceptive intensities" (Borg, 1973, p 96). Other work examined the use of Borg's PE rating scale. Morgan (1973) performed a series of experiments which examined interactions of PE, psychological state/trait, and metabolic responsivity. Morgan found that subjects without disabilities can "consistently identify differences in work load by means of Borg's psychophysical category scale, and those subjective estimates mirrored the actual metabolic cost of the work being performed" (Morgan, 1973, p 97). Morgan noted several types of individuals who were exceptions; he offered that "various psychological states and traits seemed to play a role in the perceptual processing of information relating to muscular work" (p 97). Morgan concluded "that a psychobiological approach to PE is the most efficacious" (p 102).

Essentially, all experimentation, utilizing work load and PE, used in-lab procedures; treadmills and ergometers being predominant sources of work loads for subjects performing walking or running. Little work was attempted in environmental situations. Likewise, very little research has been done utilizing wheelchair users. When wheelchairs have been employed in experimentation, use of subjects without disabilities was not found to be the protocol.

As a final consideration, work done by Noble, Metz, Pandolf, Bell, Cafarelli & Sime (1973) inspired concern for control of speed, previous research having utilized a wide variety of speeds. Some experimentation lacked control for speed. The author found no study utilizing submaximal speeds of less than 2.5 mph. For purposes of this experimentation, a tangential study determined 2.36 mph as the average speed of walking exhibited by most individuals, therefore

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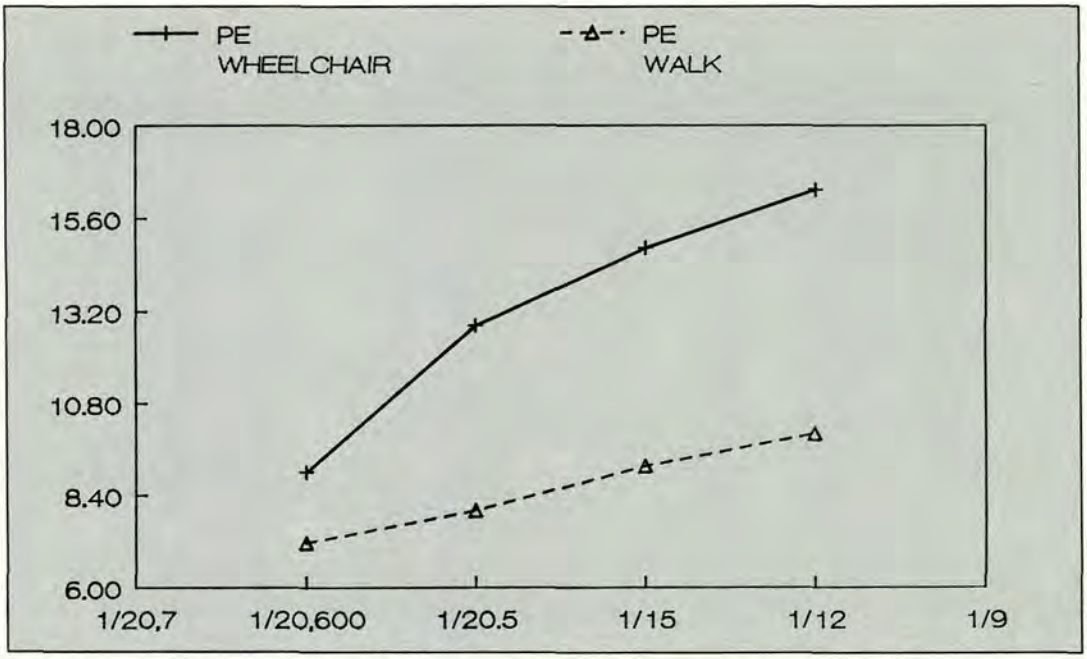

Figure 1. PE Walk vs PE Wheelchair.

2.36 mph was selected as the speed for this study.

Purpose

The primary purpose of the experimentation was to determine if established standards for gradient would guarantee accessibility. Secondly, to determine which gradients might provide accessibility for all people; thirdly, to establish a more accurate method of determining standards for all human beings—use of subjects without disabilities for base line testing was thought to accomplish a beginning of taxonomic understanding of the human condition and its variations; and finally, to utilize environmental conditions in testing.

Method

Apparatus

For determining gradients, a Topcon GTS 10-D Theodolite with Electronic Distance Measuring Device was used. The instrument had a precision of plus or minus 0.005 m. An HP41C calculator with automatic program was used for calculations. For regulating speed, a custom-made pulley was designed by the author. The pulley had a circumference that would enable a fiberglass line to be wound at precisely 2.36 mph. The line was connected to a marker so subjects could guide their speeds. The pulley was turned by a portable variable speed drill. Revolutions of the drill were certified and continually checked.

For gathering PE, a flashcard was produced which displayed Borg's scale (see Table 1) in black letters on a white card. A standard digital stopwatch was used to time heart rates. The wheelchair used for testing was an Everest and Jennings sport chair which weighed 17 lb. Use of the sport chair was thought to represent actual circumstances a person might encounter under good conditions. Tires on the chair were inflated to recommended pressure and checked before each testing.

In the literature pertaining to standards for accessibility, slopes were classified in five categories (1-5) according to composition of the surface. Class 1 slopes have a hard, smooth surface and are most efficient to traverse. All slopes in the experiment were Class 1 slopes (concrete or asphalt). From a taxonomical perspective, slopes represented the optimal type of surface commonly encountered in the environment.

Design and Procedure

First, several slopes were measured to determine gradient of each. Gradient was defined as rate of inclination. It was computed as amount of rise over run (rise-ft/run-ft). After measurement, four slopes were identified as either matching existing standards for gradient or as being close in gradient. Subjects were identified and basal heart rates determined. Finally, subjects were given instructions and tested in random fashion.

Measurement of Slopes

Twelve slopes were identified as possible test sites. All slopes were measured using Topcon GTS 10-D. Four slopes that matched or were as close as possible to existing standards were chosen for the experiment. Their gradients were 1ft/20,600ft (.004%), 1ft/20.5ft (4.5%), 1ft/15ft (6.6%), 1ft/12ft (8.3%).

Subjects were tested on all four slopes over equal distance of 70 ft. All slopes were clear of impediments (i.e., cracks). Absence of a wide variety of slope distances for further development of the taxonomy was a limitation of this study.

Subjects

University students were asked en masse if they would like to participate in a study. Students were eligible only if they had no prior training in a wheelchair experience with PE. Subjects who volunteered for testing were not aware of the reason for testing until they received PE instructions. They were given no formal explanation for the reason for testing. Basal heart rates were collected from individual subjects after they had rested for a period of 10min, and were retested for accuracy. Subjects consisted of two females and four males. Subjects were not classified as disabled.

Testing

All testing was limited to mornings

"... Standards should apply to new sites, buildings and facilities, as well as any existing buildings that undergo new construction."

(from 7:30 to 9:30 a.m.) clear of adverse weather (i.e. clear, dry, calm), and had a temperature of 75° F plus or minus 3 degrees. Optimal weather conditions represented the best taxonomic variegation. Subjects were tested individually. Randomization was used in order of slope testing and in choice of whether to walk first or use the wheelchair first; subjects were also tested in random order. An assistant was used to ensure the wheelchair did not roll backward and cause injury to subjects during testing. The assistant was positioned behind the subject and provided no known interference with testing.

Testing was conducted over a 4-week period. Prior to departing for the first site (slope), subjects were given instructions about how to respond using the PE flashcard. Once at the test site, subjects were instructed to wait for the signal and walk up, then wheel up, or vice versa, at the same speed as the marker which was pulled by the speed regulation device. As soon as the subject had reached the finish line (top of the slope) PE was collected and heart rate measured. Heart rates were measured before and after testing by feeling radial pulse. All six subjects were tested over the four slopes in the same manner. Each subject was allowed to begin a trial only if heart rate was at or below basal heart rate.

Results

Results indicated that healthy individuals without disabilities using wheelchairs at submaximal speeds perceived exertions on slopes of 1 ft/20.5 ft or greater to be between somewhat hard (13) and very hard (17). Table 2 illustrates that subjects in wheelchairs perceived the 1ft/20,600ft slope to be very light (9); 1ft/20.5ft slope as somewhat hard (12.83); 1ft/15ft slope as hard (14.83); and finally, 1ft/12ft slope as being very hard (16.33). PE scores for walking are illustrated in Table 1 to enable comparisons. Heart rates were collected and matched with PE for wheelchair, as well as PE for walking on each slope (see Table 3 for collected heart rates). Collected heart rates revealed that PE scores were accurate within two standard deviations. All PE scores for each slope (walking and wheelchair) also clustered within two standard deviations from the mean.

Discussion

Individuals without disabilities using wheelchairs perceived gradients to vary in difficulty. If one considers subjects represented a population of non-disabled persons, and that less demanding taxonomic variegations (conditions) were represented by apparatus, equipment, slopes, weather, and speeds, then conclusion must be that the same slopes would be perceived by individuals with less physical ability as being very, very hard, or even more physically demanding than the PE scale allows. Such a conclusion seemed to be further substantiated when one considered conditions would grant even less accessibility as the taxonomy variegated to be more demanding. Moreover, as the human condition variegated toward direction of the taxonomy represented by greater disability, accessibility would be further prohibited. Furthermore, a distance of 70 ft was thought to represent a minimal distance that might be representative of an entry way, walkway, or other frequently used area. As distance increased, one could expect PE to increase as well. Standards require a resting platform when slope distances exceed 40 ft. Absence of resting platforms was thought to be both a limitation of the study and representation of the majority of conditions actually encountered in the environment.

A subsequent case study employing the same experimental design was conducted using a 23-year-old female with cerebral palsy. The subject was able to ambulate without assistance with limited range. She used a wheelchair for more efficient and less arduous mobility. During testing, the subject could not ambulate up the 1ft/20ft slope, nor could she ambulate up the two steeper slopes (1ft/15ft and 1ft/12ft). In the wheelchair the subject could not propel herself up any slope except the 1ft/20,600ft, relatively flat surface.

Conclusion

Existing standards for gradient do not guarantee accessibility for all people. Instead, standards provide an architectural barrier that not only prevents use of areas, but may stand to violate the very spirit of the law which was established to guarantee rights of those for which the law was written. Experimental design used in the present study was thought to offer a new direction in establishing a taxonomy of accessibility. Use of environmental design was shown to be a viable alternative to previous in-lab designs. Use of subjects without disabilities is thought to establish the fact that research design can be improved by including subjects without disabilities rather than their exclusion.

Based upon experiences of the author during this study, and 18 years of work and study in accessibility, it is suggested that the minimally acceptable gradient for all ramps, entry ways, slopes, curb ramps, or gradients of any type, should be 1ft rise in 100ft run. Standards should apply to new sites, buildings and facilities, as well as any existing buildings that undergo new construction. Optimal design must attempt to eliminate surface gradients whenever possible.

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Operation Mainstream Intramurals. . .

Integrating of University Students in Badminton Competition

***Nick Breit** is professor of kinesiology and coordinator of the Adapted Physical Education Credential Program at California State University, Northridge.*

by Nick Breit

Sport programs for individuals with exceptional needs have evolved from early programs in Veterans Administration hospitals following World War II to acceptance into Group E of the United States Olympic Committee (USOC) membership of sport associations serving athletes with disabilities (Clarke, 1986). While progress has been made in competition among elite disabled athletes in the post-school aged population, and in school-aged special programs like Special Olympics, there appears to be a void of programs for college-aged students with exceptional needs.

Roles of intramurals in higher education are by no means recent phenomena. Participation in recreational sports can and should be seen as one phase of a college student's total education. Over 35 years ago, Meredith, (1956), discussed principles and philosophy of intramurals, and how these parallel those of general education. While rich traditions of intramurals exist at many colleges and universities across America, similar programs for students with exceptional needs are few and far between.

Top, Preparing singles participant to participate by using Ace bandage to secure racket. Below, Doubles competition among Double A participants.

Do Legal Mandates Exist?

Do colleges and universities have options for providing intramural activities for students with disabilities? Simply stated, no student is to be denied participation in an extracurricular program where it is offered to students without exceptional needs. Section 504 of PL 93-112, 1973, specifically states, "no qualified handicapped student shall, on the basis of handicap, be excluded from participation and be denied the benefits of, or otherwise be subjected to discrimination under. . . athletics, recreation..., other extracurricular, or other. . . program or activity to which this section applies" (U.S. Dept. Health, Education, and Welfare, 1977, p. 22684). Clearly stated is the concept of offering programs in the most appropriate integrated setting (Federal Register, 1977).

Involvement in Community Recreation. . . A Worthy Pursuit

Auxter and Pyfer (1989) discussed recreational sport opportunities for students with disabilities at different stages of life. PL 94-142 substantially handles school-aged children, but when these students become post-school aged their main options for participation are in community recreation services and specific handicap-only programs such as Special Olympics (Auxter & Pyfer, 1989).

One goal of special education is to provide an education that ultimately allows exceptional students to participate successfully as independent adults in their communities. In fact, during the past several years, the U.S. Office of Special Education and Rehabilitation Services (1989) has been strongly committed to fostering greater integration of students with exceptional needs into the community. The basic premise is that schools are responsible for preparing students for their lives after graduation. In relation to adapted physical education, this implies adapted physical educators must teach motor skills and reinforce behaviors that can be utilized in community activity programs.

Auxter and Pyfer (1989) stated the two main barriers preventing individuals with disabilities from participating in community recreation programs were lack of information regarding such services and physical barriers. However, needs and expectations of college students with exceptional needs appear to differ regarding participation in recreation programs. In **Operation Mainstream Intramurals** neither of these two barriers were factors which prevented college students from participating.

Planning to Mainstream

In 1987, California State University, Northridge (CSUN) elected to initiate a new mainstreamed intramural program. Because previous efforts to mainstream students with disabilities into the university intramural program had been unsuccessful, great care and effort were taken in planning this new program. Because adapted physical education faculty had offered instruction in various sport activities which would prepare students for certain intramural events, they were requested, along with Associated Students and Office of Disabled Student Services, to sponsor **Operation Mainstream Intramurals**.

An informal survey of intramural programs in California's universities was conducted to see what efforts were being made to offer intramural programs to students with disabilities. Of 12 randomly selected universities, not one intramural program provided any such special program. Only one campus indicated an interest in providing such a program!

CSUN had over 450 students registered with the Office of Disabled Student Services. This number reflected all types of handicapping conditions, including a large number of students with severe physical disabilities, but did not include hearing impaired students who were enrolled in the National Center on Deafness program. To meet student needs and ensure success for the mainstreamed program, a questionnaire was mailed to all students registered with the Office of Disabled Student Services (see Figure 1).

Questionnaires were mailed over the winter break, which might have contributed to the exceedingly poor return of 6%. Telephone follow-ups indicated many students were too busy to respond, not interested in intramurals, or had more important academic priorities. Regardless of responses, the planning committee was encouraged by positive statements from these students. Vital information from the questionnaires was utilized by the planning committee in programmatic decisions.

With the spring semester came phase two of Operation Mainstream Intramurals. Excitement of these students and commitment of the planning committee gave impetus to carry this program to completion.

Selecting Activities

With strong commitment of the planning committee, which included three students with exceptional needs, three events were planned for the year—badminton, basketball, and floor hockey. Sequence and choice of events were based on interest, difficulty, and previous successes of students in these sports when offered in adapted physical education. Since an important objective was to show able-bodied students capabilities of exceptional students and their potential to participate with students normally participating in intramurals, it was vital that sport activities be selected where some mastery could be expected. Because of space limitations, only the badminton event is specifically discussed.

Students with exceptional needs who had shown interest in sport and who may have been in adapted physical education classes were recruited along with able-bodied students from various sources. These sources included fraternities and sororities, students currently participating in intramurals, student workers closely associated with the intramural program, kinesiology and adapted physical education majors, and staff of the Office of

Name: Optional
Major:

Year Entering CSUN:
Age: Sex:

Disability (Please be specific):

Previous competitive experiences in all areas since junior high (include everything from chess to wheelchair football):

1. Have you ever been involved in competitive sports activities beyond high school? If yes, what were they?

2. Are you aware of CSUN intramural activities available to all students, including those with disabilities?

3. What has kept you from participating in intramural events in the past? Examples: time of offering, quality, etc.

4. What will it take to get your participation in a quality mainstreamed intramural program? Check each appropriate item below:

   A. Transportation to campus or specified location. ____

   B. Day and time which will be conductive for me. List the days **and** times which you prefer:
   _____

   C. Activity which is interesting and appropriate for my disability. ____

   D. Competition among disabled students only. ____

   E. Competition with able-bodied students, i.e., mainstreamed on an equal basis. ____

   F. Having an opportunity to receive instruction to help prepare me for competition. Example, Adapted Physical Education classes or mini-sports clinics. ____

   G. Good assistant or attendance needs. ____

   H. Peace of mind in knowing this participation will be safe considering my health problem. See Dr. Breit regarding Health Center consultation beyond or in place of consultation with your private M.D. ____

   I. Other items not yet considered: _____

5. Please select the activities which you think should be offered at different times for your participation. Please keep in mind that activities selected are based on number of responses and expenses involved. Be reminded that appropriate modification will be made where necessary. Put "1" if you strongly desire, and "2" if you desire.

____	Archery	____	Marbles
____	Arm Wrestling	____	Ping Pong
____	Badminton	____	Racquetball
____	Basketball - team	____	Ring Toss
____	Basketball - shooting	____	Shuffleboard
____	Bias Bowling	____	Soccer
____	Bowling	____	Softball
____	Croquet	____	Swimming
____	Dance; square, folk	____	Tennis
____	Darts	____	Table - paddle
		____	Track events; 50m relay
____	Flay football	____	Field events; shot put/discus
____	Floor hockey	____	Tug-O-War
____	Frisbee activities	____	Volleyball
____	Golf	____	Wallyball
____	Horseshoes		

6. I would like to assist in coaching type responsibility or be involved in the following aspects of the intramural program:

_____

Figure 1. Intramural questionnaire mailed to all students registered with Office of Disabled Student Services.

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Disabled Student Services. Types of exceptional students were diverse and included those participating with mild and severe handicapping conditions. Reflective of extremes were students classified as learning disabled with mild awkwardness, to one wheelchair user with a severe physical disability who competed with a racket attached to his foot.

Affective Domain

During the first event, badminton, an informal Free Response Perception Survey (see Figures 2 & 3) was disseminated to identify general attitudes in both groups of participants. The following elements were addressed: student expectations of the mainstreamed badminton event, expectancies of their badminton performances and those of their partners and opponents, and personal level of self-esteem and self-worth in the mainstreamed events such as badminton. Pre- and post-surveys were collected and analyzed following the event.

Representative Responses of Exceptional Students

Question 1A. What are your expectancies in terms of your badminton performance?

a. Pre- I want to perform to the best of my ability.
   Post- I did it.
b. Pre- I just want to hit the bird with some accuracy.
   Post- I was surprised to see how well I did.
c. Pre- I will try to get the bird over the net many times.
   Post- My performance was good.
d. Pre- I want to have a good time.
   Post- I had a great time and didn't do too badly.
e. Pre- I expect to be excellent.
   Post- I had a great time and didn't do too badly.

Question 1B. What are your expectancies in terms of your partner's performance?

a. Pre- I hope he is coordinated.
   Post- I would have liked more competition.
b. Pre- Blank.
   Post- My partner seemed equal to me in consistency and distance but was better in accuracy.
c. Pre- Hopefully, they will be able to get the shots I am unable to move to.
   Post- Sometimes I felt like they didn't feel I was disabled.
d. Pre- I hope my partner can do better than I can.
   Post- My partners were great.
e. Pre- Blank.
   Post- My partners' performance was good, and they really tried hard.

Question 2. What is your personal level of self-esteem and self-worth in a mainstreamed event such as badminton?

a. Pre- On a scale of 1 to 10, a 10.
   Post- Very strong
b. Pre- A very worthwhile event but I am low achieving in sports.
   Post- My skills improved and I learned from able-bodied students.
c. Pre- Not very good at this time. I at least want to hit the bird.
   Post- I'm much more confident than I was.
d. Pre- Not very good self-esteem
   Post- I'm much more confident than I was.
e. Pre- Very poor
   Post- I still need improvement, but I'm better than before.

Question 3. What is your expectation of tonight's competition being a worthwhile event?

a. Pre- I expect it will be worthwhile but maybe not fun.
   Post- It was very much fun.
b. Pre- It will be worthwhile to me.
   Post- I want more events like this. A great time.
c. Pre- I want to have fun, but I must study for class.
   Post- It was fun, but I needed to study for class.
d. Pre- This event will make a difference in intramural programs.
   Post- We fulfilled the goals of the event.
e. Pre- Yes, it will be worthwhile.
   Post- Very worthwhile and challenging

Question 4. How skilled are you in badminton?

a. Pre- Not very skilled
   Post- More skilled now, but I know I need to work on accuracy.
b. Pre- I'm one of the best in adapted P.E.
   Post- I may even be better than I thought.
c. Pre- I have no skill.
   Post- I learned how to hit the bird over the net.
d. Pre- Not at all skilled
   Post- Not very skilled
e. Pre- I have good skill.
   Post- My skill is not good enough.

Figure 2. Free Response Perception Survey for students with disabilities.

Representative Responses of Able-Bodied Students

Question 1A. What are your expectations in terms of your badminton performance?

a. Pre- My performance isn't as important as the teamwork and interaction with my partner.
   Post- Teamwork is very important.
b. Pre- We will win!
   Post- The competition amongst competitors was extremely high.
c. Pre- To try to keep the bird in the air and have a good time while making friends.
   Post- Meet new people and better understand the disabled.
d. Pre- Play badminton and have a lot of fun.
   Post- I had a great time and am really impressed with how the disabled played.
e. Pre- I just hope to hit the bird so my partner and I will have fun.
   Post- I expected to do worse than I did.

Question 1B. What is your expectation in terms of your partner's performance?

a. Pre- Need good teamwork and interaction with partner.
   Post- I expected my partner to assist me, not do all the work.
b. Pre- Blank.
   Post- I found that my partner's ability was above what I had expected.
c. Pre- I expect my partner to try and play his/her best and have fun.
   Post- My partners did a great job and seemed to enjoy themselves.
d. Pre- I don't have any expectations.
   Post- Pretty good.
e. Pre- Blank.
   Post- My partners did better than I thought they would.

Question 2. What is your personal level of self-esteem and self-worth in a mainstreamed event such as badminton?

a. Pre- Self-esteem isn't important in this event and probably won't be changed.
   Post- My abilities were challenged but self-esteem was the same.
b. Pre- Compared to my friends it is quite high.
   Post- It is still very high.
c. Pre- Pretty good. I feel confident in doing things I really believe in.
   Post- I learned a lot about self-worth and understanding myself.
d. Pre- Very high, yet I don't know the sport.
   Post- I feel so much better inside. It was a good and different experience.
e. Pre- Not too high. I am a little hesitant but excited.
   Post- After competing it is much more sound and secure because of everyone's good attitude.

Question 3. What is your expectation of tonight's competition being a worthwhile event?

a. Pre- A very high expectation and will be worthwhile and fun.
   Post- Outstanding; not just fun but a learning experience.
b. Pre- As long as all have a good time it will be worth my time.
   Post- Fun. I feel the entire student body should be notified about these events.
c. Pre- A lot will be accomplished in the attitudes of all participants.
   Post- The spirit of competition was a constant factor and a very worthwhile event.
d. Pre- I think it will be very worthwhile and I expect to learn and have a good time.
   Post- I enjoyed it a lot more than I thought I would. Very impressed! Badminton was a lot harder than I thought.
e. Pre- It will be worthwhile.
   Post- I was concerned about hurting someone, but it wasn't like I thought. I felt the competition in the air.

Question 4. How skilled are you in badminton?

a. Pre- Unskilled
   Post- Poor
b. Pre- I am not very skilled.
   Post- Novice
c. Pre- I have never played the game.
   Post- I found out I am worse than I thought.
d. Pre- A good player.
   Post- On a 1 to 10 scale, an 8.
e. Pre- I don't know, o.k.
   Post- Medium

Figure 3. Free Response Perception Survey for able-bodied students.

Making Competition Fair

Fifteen able-bodied and 13 students with disabilities participated in the first badminton event. This fell short of the goal of 20 students in each group. They were subsequently divided into two divisions. The **Double A** category included stronger/more mobile exceptional students, and skilled/more competitive able-bodied students who were teamed for doubles and remained with their mainstreamed partners throughout the two-hour round robin tournament.

The larger task was creating worthwhile, fun badminton skills for **Single A** students which would be commensurate with their abilities and still be challenging. These were the more severely involved students who were teamed with less skilled/less competitive able-bodied students. The **Single A** Division Skills form illustrates skills used, modification for lower functioning students, how to *equalize* the ability of the higher functioning partner, and scoring procedures (see Figure 4). Notice that each doubles team member not only competed against his/her partner, but combined scores to compete against other teams.

And. . . The Results

The first event of Operation Mainstream Intramurals was a fantastic success! Tremendous effort to recruit students and plan for the event was definitely worth it. Verbal feedback and free response perception survey comments indicated exceptional students felt good about their own performances and their abilities to participate with able-bodied students. A majority of participants with disabilities stated or implied they *held their own* with able-bodied students and experienced growth in self-esteem. Only one exceptional student was disappointed with her performance, while a few were disappointed with abilities of some able-bodied students.

Many able-bodied students reported great admiration for students they competed against. Being teamed with a partner for the entire event was a tremendously enlightening, educational experience. Many able-bodied participants acknowledged that their expectation levels of exceptional students were positively and significantly changed during the event. Almost every participant expressed excitement and desire to be informed of future mainstreamed events, and acknowledged this first mainstreamed event was very worthwhile. All responses on the Free Response Perception Survey are too numerous to include, but representative responses of exceptional and able-bodied participants are included (see Figures 2 & 3).

A Closer Look

Although year one of Operation Mainstream Intramurals was successful, three critical questions must be asked. First, how many students with disabilities would have participated if they were not strongly encouraged to do so? For a variety of reasons, it was extremely difficult to elicit participation by these students. Students not participating expressed such reasons as excess academic pressures, fatigue, different educational priorities, and conflicts in schedules. The planning committee's use of the preliminary intramural questionnaire was intended to address such reasons and give students opportunities to express these feelings prior to the event.

Secondly, were goals of mainstreaming for able-bodied students fulfilled, or were those students involved already sensitive to and appreciative of students with special needs? Or, is it possible that some fraternity or sorority members participated because they were assigned to fulfill philanthropic goals of their organizations? Regardless of original incentives for participating, the vital concern is what attitude changes appeared to take place through this intramural event.

And, lastly, can any mainstreamed intramural event succeed without a strong and unified commitment of all concerned university staff, as well as an intramural staff willing to assume leadership, which includes a strong commitment to and understanding of students with exceptional needs?

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Above: Teamwork takes on a new direction.
Opposite: The finale: the winner is. . . and sharing of experiences.

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Single A Division

Team # _____

Partner A _____ Partner B _____

PART I ACCURACY

Goal: With the bird tossed or hit to student by partner, student will hit as many birds *into the hula hoop* as possible. 7 minutes per student.
Score: 1 point for landing *in* hoop.
Skill equalizer: Hoop put in base court and/or use opposite hand.

Partner	Partner
A Score ____	B Score ____

PART II CONSISTENCY

Goal: Hit as many birds farther than the partner's bird. Bird will be tossed or hit to student by partner.
Score: 1 point for each consecutive hit.
Student equalizer: Use opposite hand and/or stand near base court.

Partner	Partner
A Score ____	B Score ____

PART III DISTANCE

Goal: Hit as many birds farther than the partner's bird. Bird will be tossed or hit to student by partner.
Score: 1 point for each farthest shot.
Student equalizer: Use opposite hand and/or near base court.

Partner	Partner
A Score ____	B Score ____
Total A ____	Total B ____

Partner A & B: TEAM TOTAL _____

Figure 4. Badminton skills form utilized to equalize ability of higher functioning partner.

CHILD ABUSE AND NEGLECT —

Considerations for Clinical Programs in Adapted Physical Education

by Walter F. Ersing and Joseph H. Huber

Passage of the Child Abuse Prevention and Treatment Act (PL 93-247) in 1973, resulted in federal legislation that required each state to develop policies and procedures for effective reporting, investigating, and evaluating of alleged child abuse and neglect cases. Effect of this legislation, coupled with concern by society about the problem of abuse and neglect in general, led to heightened enforcement of legal policies and procedures during the 1980s. Hence, reports about child abuse and neglect cases via the media have become pervasive.

Education is not immune from the impact of such federal and state legislation. All 50 states have mandates that educators be included among the list of professionals required to report suspected cases of child abuse and neglect (Broadhurst, 1986). This type of legal mandate has implications not only for teacher education within adapted physical education, but also for administration of on-campus clinic or laboratory physical education programs for children with disabilities.

Since each professional preparation program and state have their own unique settings and accompanying circumstances, it is not the intent of this discussion to provide specialists in adapted physical education with a specific approach for dealing with the issue of child abuse and neglect. Rather, it is intended that this article identify dimensions of the issue that should be taken into consideration when conducting a clinic or laboratory program at a college or university.

At least six important dimensions are addressed: (a) legal considerations, (b) institutional policies and procedures, (c) parental involvement, (d) program supervision, (e) preservice/inservice programs, and (f) community relations. It is hoped that discussion of these elements provides direction for clinic or laboratory programs and for preservice/inservice training.

Legal Considerations

To understand and address effectively any piece of legislation dealing with child abuse and neglect, educators must thoroughly familiarize themselves with policies and procedures mandated for their specific states (Rose, 1980). Of particular importance is knowing which state social agency is responsible for enforcing state policies, understanding procedures used by the state agency for processing reports of child abuse, and understanding procedures for investigating reported cases. Although educators have no legal responsibility for investigating and intervening in child abuse cases, they do play important roles in these processes (Broadhurst, 1986).

Being familiar with a state's policies and procedures becomes critical because they help determine what information remains confidential and what is released to the press. Interest of the press is usually attracted when a student clinician in a clinic or laboratory program is charged with sexual or physical abuse, or when parents are suspected of child abuse or neglect.

Dr. Walter F. Ersing *is currently professor emeritus at The Ohio State University where he was involved in the field of adapted physical education for 34 years. His major focus was the preparation of specialists in the field at the graduate level. He is remaining active in the profession through consultation, writing, and community agency activities.*

Dr. Joseph H. Huber *is currently professor of adapted physical education and motor learning at Bridgewater State College, Bridgewater, Massachusetts. He is also Director of the College's Children's Physical Developmental Clinic.*

Of equal importance is dissemination of legal information on state laws dealing with child abuse and neglect, and utilizing appropriate resources within state agencies. Incorporating legal information as part of orientation activities for a clinic or laboratory program, or within preservice/inservice training, can be an effective avenue for dissemination and can serve as a preventive measure.

Institutional Policies and Procedures

To effectively manage cases of child abuse and neglect that may occur on campus, a college or university should develop a written document that clearly states policies and procedures. This document should be applicable to all programs on campus providing direct services to children.

A multidisciplinary approach to developing the document is advised. Representation from the following areas is desirable: academic areas providing direct services to children on or off campus, departments offering curriculum courses in various areas related to children or conducting research on children, and the college or university administration, particularly the legal staff. With respect to the legal staff, the Council for Exceptional Children (CEC) recommends consulting an attorney specializing in child abuse cases, or the state attorney general when developing policies, given the complex nature of abuse and neglect problems (We Can Help, 1979).

A policies and procedures document should incorporate the state's legal and ethical guidelines regarding child abuse and neglect, guidelines and restraints pertaining to reporting and investigating procedures, and court procedures. Answers to basic questions about child abuse cases also need to be included in a policies and procedures document. Direction would be provided by addressing the following key inquiries: Who should report an alleged abuse? To whom should an alleged abuse be reported? Should the child's parents be told a report is being made? Should other parents of children in the program be informed of an alleged incident in the campus program, and—if so—when and how? What is the college's role with parents who report an incident of abuse or neglect in a college program? What happens when a student or staff member is accused of child abuse or neglect? What is the college's role with a student, faculty, or staff member who is charged with an alleged case of child abuse or neglect while on campus? What can a professional or student do to be protected from an allegation?

A document dealing with administration of a clinic or laboratory program for children must also include guidelines for managing and reporting inappropriate behaviors of children in the program. Information on use of positive and aversive contingencies should be provided to clarify the institution's position on these reinforcement procedures. Such guidelines should be shared with parents, included in a staff manual, and discussed in preservice/inservice training of student clinicians.

Problems and issues of confidentiality also warrant attention in a policies and procedures document (We Can Help, 1979). A policy of confidentiality should establish security procedures for handling and accessing client records and disseminating client information to the media. The policy statement should also provide general guidance on informed consent.

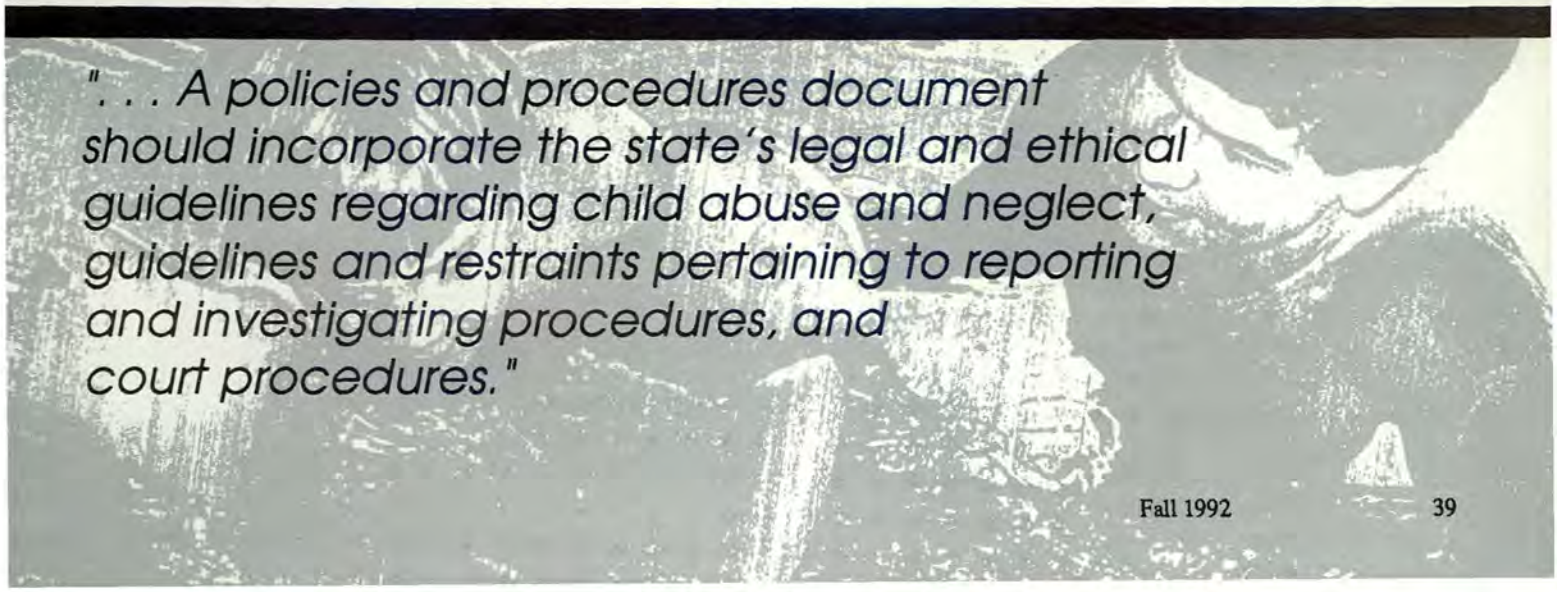
Parental Involvement

Sensitivity to needs of parents in any program serving their children must be addressed (Rose, 1980). Keeping parents informed and providing opportunities for their involvement are critical to generating support and confidence in a program provided to their children.

A general information letter mailed to parents in advance of their child's first program session is an effective communications tool. In addition to information on program procedures (i.e., parking arrangements, clothing needs, sickness procedures), the initial letter should address parent roles and functions within the program, what parents can expect from program administrators and student clinicians, observation arrangements, policies for managing behaviors of children in the program, and the program's child abuse and neglect policies.

In addition to written materials, an orientation meeting for parents prior to the start of a children's clinic or laboratory program is another valuable means of informing and interacting with parents. The orientation should be devoted to presenting new and returning parents with an overview of the clinic program, staff, critical policies (i.e., confidentiality, child abuse and neglect), and parent roles and responsibilities. A key component of the meeting should be to provide participants with opportunities to ask questions.

To further reassure parents and gain their confidence in a program, opportunities for them to observe their children should be provided beginning with the first program session. Parent observation space should be designated in the developmental motor area (gymnasium), water orientation area (swimming pool), and



". . . Maintaining proper relationships with community groups and state agencies can serve to prevent or defuse a problem of child abuse or neglect confronting the administration of a college or university."

dressing facilities. However, it should be explained to parents with children participating for the first time that their presence could inhibit development of rapport between their child and student clinician. Therefore, if unable to observe their child *from a distance* for the first session or two, it is recommended their attendance be delayed to a later session.

Program Supervision

The administrative function of program supervision can be an important means for preventing child abuse and addressing safety concerns. Furthermore, program supervision can serve as a source, along with student clinicians, for identifying children who may be abused. Consequently, an appropriate number of supervisors *must* be assigned to various areas used for program activities, including dressing facilities, to promote prevention and safety.

Roles of the supervisor need to be described and communicated to parents and student clinicians. Among responsibilities one could assign to this position are monitoring appropriate teaching performance feedback, producing evaluative data for grading purposes, monitoring safety procedures, assuring implementation of appropriate teaching styles and program activities, and directing procedures in the event of emergency situations. An advantage to having well-trained program supervisors is that they provide a system for monitoring locations of children in the program. Values of supervisors interacting with parents while the program is in progress, and verifying events when a given episode occurs, can be extremely helpful in keeping parents informed and preventing rumors.

Preservice/Inservice Programs

Presenting and discussing information on child abuse and neglect need to be parts of teacher education programs for professional students whether they are preparing to be regular physical education teachers or specialists in adapted physical education (Cicchett, Taraldson, & Egeland, 1978). Including child abuse and neglect information as part of a preservice program for professional students exposed to hands-on clinic or laboratory experiences increases student understanding of preventative measures that can be employed (see Selected Resources). Social service specialists who deal with such problems daily, or an introductory film on the subject, should also be incorporated into a preservice program on the topic of child abuse and neglect.

A preservice program must also address the issue of allowing children to perform daily living tasks independently whenever possible. In sensitive situations, such as drying one's body after a shower, policy and procedures should place responsibility on the child to use a towel to dry private areas, while the student clinician assists only when necessary with remaining body areas. When functional/developmental level does not permit such involvement by a child and private areas need to be towel-dried by a staff member, a procedural arrangement should be established and implemented only with knowledge and approval of the parents and adequate locker room supervision.

Community Relations

Maintaining proper relationships with community groups and state agencies can serve to prevent or defuse a problem of child abuse or neglect confronting the administration of a college or university. One means of establishing interactions with various groups and agencies is through a community-college advisory committee. Such a committee could meet at least annually to communicate new developments, review policies and procedures, advise the college and clinic or laboratory administration as to future directions, and help in community education (Sefeik & Ormsby, 1978).

An advisory committee could serve as a public relations tool, with membership composed of representatives from the college or university administration, clinic or laboratory program, parent groups, referral and community agencies involved with the disabled (i.e., Special Olympics, United Cerebral Palsy), public schools, state departments of education/special education, and student groups. An annual meeting could be held on the day of a clinic or laboratory session, thus permitting observation of the program and facilitation of committee member interactions with student clinicians and parents.

Summary

This discussion was designed to heighten educators' awareness of steps that should be taken to prevent and/or deal with child abuse and neglect in college or university physical education clinic or laboratory programs. How a child abuse problem is addressed when a program becomes involved can impact the reputation of the accused individual, program, and institution. Being knowledgeable and sensitive to this problem are critical factors in determining how effectively an institution of higher education and its faculty deal with this delicate social issue.

Exposure to the issue of child abuse and neglect at some point in professional preparation of teachers in physical education is essential. It is a problem teachers may confront in their careers and should be prepared to address. Understanding legal regulations and responsibilities about child abuse and neglect in a given state must be an essential competency if teachers are to respond effectively if confronted with the problem.

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Associations and Centers

The American Humane Association
63 Inverness Drive, East Englewood, CO 80112
1-(303)-792-9900

C. Henry Kempe National Center for the Prevention and Treatment of Child Abuse and Neglect
University of Colorado Health Sciences Center, Department of Pediatrics
1205 Oneida, Denver, CO 80220-2944
1-(303)-321-3963

Clearinghouse on Child Abuse and Neglect Information
PO Box 1182, Washington, DC 20013
1-(202)-821-2086

National Committee for Prevention of Child Abuse
332 S. Michigan Avenue, Suite 1600, Chicago, IL 60604-4357
1-(312)- 663-3520

The National Resource Center on Child Sexual Abuse
106 Lincoln Street, Huntsville, AL 35801
1-(800)-KIDS-006

Creating Sport Opportunities for Persons with Profound Disabilities: Special Olympics Motor Activities Training Program

by Martin E. Block

Martin Block is director of Special Olympics International's Motor Activities Training Program. He is also an assistant professor in the Department of Human Services, Curry School of Education, at the University of Virginia in Charlottesville. His main interest area lies in physical education for children with severe disabilities.

OVER the past 10 years there has been an explosion of sport opportunities for persons with disabilities. For example, many ***Palaestra*** authors have reported how individuals with disabilities have trained and competed in such diverse individual, team, or lifetime leisure sports as track and field, swimming, golf, tennis, sailing, rock climbing, basketball, and softball, just to name a few. Coaches, physical educators, and recreators alike are coming to the realizations that sport participation by persons with disabilities can provide the same physical and socioemotional benefits that it provides persons without disabilities (Sherrill, 1984).

One group of individuals with disabilities that generally has not benefited from these new sport opportunities are those with *profound disabilities*. Thompson and Guess (1989) recently characterized persons with profound disabilities (as opposed to the more encompassing term of *severe handicaps*) as those individuals who possess (a) extremely limited awareness due to cognitive impairments, (b) extremely limited response repertoires due to physical disabilities, (c) extremely limited or no communication skills, and (d) concomitant problems such as sensory deficits and/or medical complications. Physical education and recreation programs designed for such individuals have often emphasized physical therapy techniques such as range of motion, relaxation, and neurodevelopmental therapy, or passive recreation activities such as watching television, listening to the radio, or playing board games. For example, Auxter and Pyfer (1989) stressed physical and occupational therapy techniques in modifying activites for persons with profound mental retardation; Moon and Bunker (1987) emphasized hobbies, games, and motor skill development in recreational programming for persons with profound handicaps more than participation in sport activities.

While such activities are not inappropriate or harmful for persons with profound disabilities, they constitute only a small part of a comprehensive physical education or recreation program as defined by PL 94-142. This law clearly defines physical education as "the development of physical and motor fitness; fundamental motor skills and patterns; and skills in aquatics, dance, and individual and group games and sports including intramural and lifetime sports" (Federal Register, Aug. 7, 1977, p. 42480). Recreation activities include individual and team sports, as well as hobbies (e.g., exercising, arts and crafts, listening to music) and games (e.g., board games, card games, video games). Furthermore, recreation

differs from physical education in that an individual chooses to participate in recreational activities based on personal preferences and enjoyment (Moon & Bunker, 1987). Sport training and participation are clearly important aspects of both physical education and recreational programming. There is need to develop more appropriate motor and sport training programs for persons with profound disabilities that can become part of comprehensive physical education or recreation programs.

Special Olympics has always strived to provide sport training and competition opportunities for persons with mental retardation regardless of their abilities. This effort originally led to the creation of Special Olympics ***Developmental Sports Program*** (Special Olympics, 1985). However, based on field testing of the program, activities were not sport specific or appropriate for athletes with the most profound handicaps[1]. Therefore, Special Olympics developed a new program, ***Motor Activities Training Program*** (MATP), to provide persons with profound disabilities opportunities to experience all the joys and excitement of sport training and participation. The purpose of this article is to present the Special Olympics MATP and explain how it can be used in physical education and recreation settings to provide sport opportunities for persons with profound disabilities.

Motor Activities Training Program

MATP is a motor and sport training program designed specifically to meet unique needs of those persons with profound disabilities who have traditionally been excluded from Special Olympic programs. MATP was originally conceived and developed in a meeting of 26 United States specialists in adapted physical education, therapeutic recreation, and physical therapy. The original program was then field tested in California, Louisiana, Maine, New Jersey, and New York, and revised with assistance of a new committee of experts from around the world including Norway, Belgium, and Ireland. This final version was then retested in Europe and the United States, with the final program officially recognized by Special Olympics International in 1988. MATP is currently being implemented in several Special Olympics chapters in the United States and Europe, and several researchers are utilizing MATP in studies of integrated physical education and recreation programming.

MATP has been developed based on beliefs that (a) *all persons* can participate in sport training at some level, and (b) sport participation is beneficial and can facilitate appropriate physical and social skills necessary to bring interaction with nondisabled peers in community settings. Generally, many persons with profound disabilities are not able to participate independently in most sport activities. However, Helmstetter (1989) pointed out that functional programs, including recreational activities such as individual and team sports, can and should be presented to persons with profound disabilities. He also noted that these programs should stress *partial participation* (i.e., participation with physical assistance) rather than no participation, as well as adaptations of equipment and rules of sports to make it easier for a person with profound disabilities to participate. MATP emphasizes both partial participation and adaptations of equipment and rules. That is, no participant is excluded from the program because of cognitive or physical inadequacies. If a participant cannot perform a given motor activity independently, then modifications to the activity are made and, if necessary, physical assistance provided. For example, if a participant cannot stand and bowl, then a ramp is provided and physical assistance is given so the participant can take part in the bowling program.

MATP is built around the following seven motor skills that were specially developed to lead into specific official Special Olympics events:

- mobility — gymnastics (level A floor exercise)
- dexterity — athletics/softball (tennis ball throw)
- striking — softball/bowling (bat for distance, ramp bowling)
- kicking — soccer (kick and score)
- manual wheelchair — athletics (10m wheelchair event)
- electric wheelchair — athletics (25m electric wheelchair event, 30m slalom)
- aquatics — aquatics (10m assisted swim, 15m flotation race)

Each of these motor skills has been divided into 3 to 5 major subcomponents, and then each of these subcomponents further divided into teaching sequences or *task analyses* so a teacher, parent, or therapist can present these skills in a more systematic way. An example of subcomponents, teaching sequence, and task analysis for the *Manual Wheelchair* section is presented in figures 1 and 2.

[1]Developmental and lead-up sports that comprised the Developmental Sports Program have recently been integrated into the Official Special Olympics Sports Program. These activities, which can be found under each Special Olympics Official and Demonstration Sport, now provide opportunities for persons with severe handicaps to participate in Official Special Olympics Competitions at sport-specific venues along with less disabled participants. For example, Special Olympics Aquatics now includes a 10m assisted swim, a 15m walk, and a 15m flotation race. A list of these new Official Special Olympics Sports events can be found in the MATP Guidebook under the section titled ***The Next Step*** or in the ***Official Special Olympics Summer Sports Rules Book*** (Special Olympics, 1988b).

MANUAL WHEELCHAIR

8.0 Given demonstration and practice, the participant will successfully perform wheelchair activities.

8.1 Participant will place hands on wheels of wheelchair.

TASK ANALYSIS

a. Give participant verbal cue: "Push your wheelchair."
b. Allow participant several seconds to put his/her hands on wheels.
c. If participant does not reach for wheels, repeat verbal cue and assist participant by gently tapping his/her hands and placing them on wheels of chair (for persons with spasticity, grasp them at shoulder and elbow to move hand toward wheel).
d. Reinforce participant for touching wheel of wheelchair, and encourage him/her to keep hands on wheel for longer and longer periods.
e. If participant does not keep hands on wheels for any length of time, provide assistance as in "c" above.
f. Allow participant 30-60 seconds rest and then repeat several times. Reinforce participant during this rest period, as well as during the activity.
g. Gradually decrease rest period while increasing the time the participant keeps hands on wheels of wheelchair.

8.2 Participant pushes wheels of wheelchair with assistance.

TASK ANALYSIS

a. Give participant verbal cue: "Push your wheelchair."
b. Allow participant several seconds to push his/her wheelchair while you provide encouragement.
c. Encourage participant to grab the wheels of the chair tightly and pull wheels in a forward direction.
d. If participant does not make wheelchair move, provide assistance by gently placing your hands over his/her hands on the wheels of the chair and assisting in pulling the wheels forward.
e. Once participant's arms are extended forward as far as possible for that person, encourage him/her to release wheels, bend elbows, and then regrasp wheels as in "b".
f. If participant does not release and then regrasp wheel, repeat verbal cue and provide assistance as in "d".
g. Repeat sequence of "a-f" 3-5 times.
h. Allow participant a 30-60 second rest period, and then repeat several times. Reinforce participant during this rest period, as well as during the activity.
i. Gradually decrease rest period and increase time participant is having to push his/her chair.

8.3 Participant pushes wheelchair forward 3-5 feet independently.

TASK ANALYSIS

a. Give participant verbal cue: "Push your chair forward" (or to some reinforcer).
b. Allow participant several seconds to push chair forward.
c. Encourage participant to place hands correctly on wheels, pull wheels forward, release wheels and regrasp correctly, and then repeat pulling wheels forward.
d. Use separate verbal cues if necessary for each component of the movement, and if necessary, provide physical prompts or assistance.
e. Gradually fade assistance and encourage participant to try and move chair in a continuous fashion (to make the initial attempts more successful, push participant from behind as he/she attempts to push chair forward using wheels).
f. Reinforce continuous movements of the chair, and encourage the participant to move the chair forward farther and farther.
g. After 5-7 successive pulls forward, allow participant 30-60 seconds rest before repeating above sequence. Reinforce participant during this rest period, as well as during activity.

Figure 1. Teaching sequence for manual wheelchair.

"... While most adapted physical educators and therapeutic recreators are familiar with the philosophy of *functionality*, as well as such words as *age appropriateness* and *partial participation*, many professionals have not incorporated these philosophies into their physical education or recreation programs."

MOTOR ACTIVITIES TRAINING PROGRAM MANUAL WHEELCHAIR
TASK-ANALYSIS DATA SHEET

Trainer: _____ Key: I = Independent
Student's Name: _____ V = Verbal
Place: _____ G = Gestural
Activity: _____ P = Physical

Task Analysis	Dates										
1. Give verbal cue: "Push your wheelchair."											
2. Lifts hands by flexing elbow.											
3. Places hands on wheels of chair.											
4. Grasps wheels tightly.											
5. Pushes wheels forward by extending arms.											
6. Extends arm fully.											
7. Ungrasps wheels of chair.											
8. Lifts hands by flexing elbow.											
9. Regrasps hands on back part of wheels.											
10. Pushes wheels forward by extending arms											
11. Participant pushes chair forward on average of ____ centimeters.											

Figure 2. Task analysis data sheet for manual wheelchair.

Program Philosophy

It is the firm belief of Special Olympics Motor Activities Training Program, as well as other advocacy groups such as The Association for Persons with Severe Handicaps (TASH), that all individuals with profound disabilities should have opportunities to participate in age-appropriate and functionally-based activities in community settings. It is only through training in age-appropriate activities in community environments that individuals with profound handicaps will have opportunities to develop skills and friendships needed to be truly accepted and integrated into society (Schleien & Ray, 1988). While most adapted physical educators and therapeutic recreators are familiar with the philosophy of *functionality*, as well as such words as *age appropriateness* and *partial participation*, many professionals have not incorporated these philosophies into their physical education or recreation programs. Including children with profound handicaps into integrated physical education settings may be viewed by some physical educators as inappropriate or even dangerous. However, we must remember that as recently as 1968 it was thought children with mental retardation could not participate in sports. Therefore, a brief review of components of functionality is provided. It should be noted that providing age and functionally appropriate activities in integrated settings can be dangerous to players with profound disabilities. It is extremely important that such players be paired with trained peer tutors or attendants who can protect players from dangerous situations, as well as assist players in the course of the activity.

- **Age appropriateness** means activites are selected based on a participant's chronological age rather than functional age. While important to consider a person's functional skills when choosing *how* to present skills and activities, *what* activities to select should be based on activities that nondisabled peers enjoy. For example, high school students usually participate in individual and team sports such as tennis, track and field, gymnastics, softball, basketball, and volleyball, as well as in lifetime leisure activities such as aerobics, strength and conditioning training, swimming, and golf. If these activities are age-appropriate for high school students without disabilities, then high school students with profound disabilities should also train and participate in these activities. Participants with profound disabilities who are exposed to and thereby develop an interest in age-appropriate activities are more likely to be accepted by and interact with nondisabled peers both in school and in the community, and acquire more acceptable social behaviors (Moon & Bunker, 1987).
- **Functionally-based** activities are useful in both current and future life situations (Moon & Bunker, 1987). A participant's current life and future life circumstances, and circumstances of the community where the individual resides, should all be considered when determining if an activity is functional. For example, floor hockey might be functional for a high school student in Canada since it is a popular sport played in Canadian high schools and community recreation programs, and ice hockey is a popular spectator sport in Canada. Children with profound disabilities who have participated in floor hockey training have more in common with their peers in school, more opportunities to interact with peers after school, and greater understanding of ice hockey when they attend a hockey game as part of a community recreation outing.
- **Partial participation** suggests that persons with profound disabilities can acquire many skills necessary to participate in age-appropriate, functional activities. Parts of skills that cannot be performed due to physical or cognitive limitations can be compensated for through assistance by a teacher or peer tutor. Assistance can be in the form of verbal cues, physical prompts, complete physical assistance, adapted rules, and/or adapted equipment. For example, a child who has very limited independent hand use and upper body strength can partially participate in bowling by pushing a ball down a ramp with physical assistance. Another child who has some movement in his right foot can play a modified game of soccer by touching a switch with that foot, causing a ball to be shot towards a goal. By utilizing partial participation, no student should be denied an opportunity to participate in age- and functionally-appropriate activities.
- **Community-based sport and recreation opportunities** are ultimate goals of any physical education or recreation program providing individuals with skills needed to participate safely and successfully in community-based sport and recreation programs. Persons with profound handicaps also need to develop these skills, yet they are often denied access to community facilities or programs. Without access to community facilities and programs, persons with profound handicaps will not have opportunities to develop appropriate recreation and leisure skills, and behaviors that can make them true parts of the community. It is important for physical educators and recreators alike to work with community agencies and facilities such as YMCAs, health clubs, local recreation departments, and community recreation facilities so persons with profound handicaps can truly access community facilities. Furthermore, daily and weekly training should take place in the community whenever possible. For example, a local swimming pool is a great place for a swimming program that can also provide rich experiences in dressing and grooming skills, appropriate behavior in a community setting, interactions with nondisabled peers, and, of course, recreational experience of swimming. Schleien and Ray (1988) provided an excellent resource on how to develop and implement a community-based recreation program.
- **Making activities successful and fun** for each participant cannot be underestimated. So often persons with profound disabilities are exposed to activities that promote failure and frustration. Furthermore, activities that are appropriate are often presented in sterile, unstimulating environments. Creating a fun, successful program can be accomplished by being creative in presenting activities, utilizing adapted equipment when needed, choosing activities that are of interest to the participant and his/her family, and by taking part, along with participants, in activities.

"... It should be evident from these examples that many sport activities can be modified so persons with profound handicaps can participate and be integrated into sport activities without a major compromise to the integrity of the game for nondisabled players."

Modifying Group Games and Activities

Another consideration when programming for persons with profound disabilities is developing strategies to modify popular sports and childhood games so that everyone, regardless of ability, can participate. The following list of modifications contained in MATP can be used to create modified sport-type activities in settings in which all participants have disabilities or in settings in which it is feasible to integrate persons with and without disabilities together. In the later case, it is extremely important to maintain the integrity of the sport or game so participants without disabilities are challenged at their own levels.

- **Space.** Modify playing space, widths and lengths of boundaries, and any other dimensions that can make participation successful for persons with profound handicaps. Space also can be modified so a person with profound disabilities has a special zone where only he/she can get the ball. For example, most players can play a regular game of soccer when the ball is in 90% of the playing field. When the ball enters into the special zone, only the player with profound handicaps is allowed to kick the ball with assistance of a peer tutor or attendant. The assistance also protects the player from dangerous situations. Such a setup allows nondisabled players to be challenged and still allows for players with profound handicaps opportunities to be a part of the game (Special Olympics, 1988a).
- **Size and weight of equipment.** Modify size of equipment so balls, targets, nets, striking implements, and other important pieces of equipment are more easily used by persons with profound handicaps. For example, when it is the turn of a participant with profound handicaps to bat, he/she is allowed assistance from a peer tutor to hit the ball and to move to first base. When nondisabled participants take their turns, rules revert to regulation.
- **Positions.** For athletes with profound handicaps, choose positions that do not require as much mobility or skill. While each person should have opportunities to experience all positions in a game, some positions are better suited for persons with profound handicaps. For example, a wing fullback in soccer does not require as much mobility as a center halfback. Similarly, a right fielder in softball presents less physical demands than playing shortstop or pitching. In both situations, a peer tutor or attendant can assist the player to play the position and to protect him/her from dangerous situations.
- **Utilize peer tutors.** In most situations a peer tutor teamed with a participant with profound handicaps can allow full integration without drastically affecting quality of the game. For example, a game of volleyball can be played without modification until the ball enters the participant's area. In this case, the peer tutor is allowed to catch the ball and hold it for the participant who hits it with his/her hand, foot, or head stick. Once the ball is hit, another player from that team must play the ball in regular fashion, and the game goes on from there. Similarly, a peer tutor can assist a participant with profound handicaps in a game of basketball. The peer tutor can push the participant around the court and guard an opposing player as needed (a wing person in a zone defense is effective). On offense, if the participant is in scoring position, a teammate can pass the ball to the peer tutor. The tutor places the ball on the participant's lap tray, and the participant has some predetermined amount of time (long enough for reasonable success but short enough not to stop flow of game) to push the ball off the tray. If this is done in the allotted time, then the team gets two points. If not accomplished, the tutor takes the ball off the player's lap tray and throws it up in the air for either team to rebound.

It should be evident from these examples that many sport activities can be modified so persons with profound handicaps can participate and be integrated into sport activities without a major compromise to the integrity of the game for nondisabled players. Other sources for modifying games and sports for both segregated and integrated settings can be found in Dunn & Fait (1989), Dunn et al. (1980), Florida Department of Education (1982), Marsallo & Vacante (1983), Wehman & Schleien (1981), and Wessell, Green, Knowlton, & Lessard (1981).

Warm-up and Conditioning Activities

While stretching and relaxing activities alone do not constitute an entire motor/sport training program for persons with profound disabilities, warm-ups that include these techniques, as well as prescribed range of motion and strengthening activities should be included as part of a total physical education program. MATP encourages participants to take part in these activities, and suggests ways to present such activities developed by physical therapists and adapted physical educators. Stretching and relaxation includes passive and active stretching activities that have been designed for three distinct types of participants: (a) those who have relatively normal ranges of motion, (b) those who have relatively normal upper body ranges of motion but restricted lower body ranges of motion, and (c) those with restricted upper and lower body ranges of motion who need

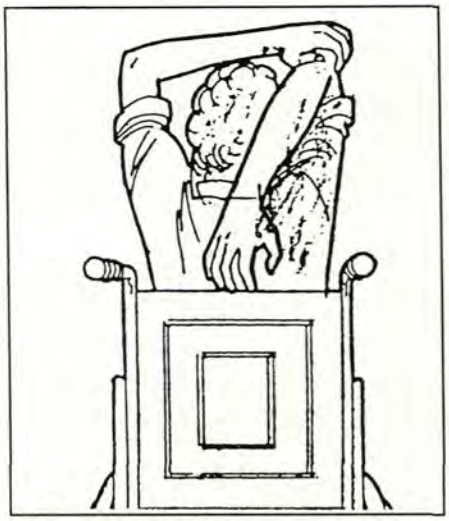

Figure 3. Stretching for persons with lower body dysfunction.

Figure 5. Stretch bands for strength training for persons in wheelchairs.

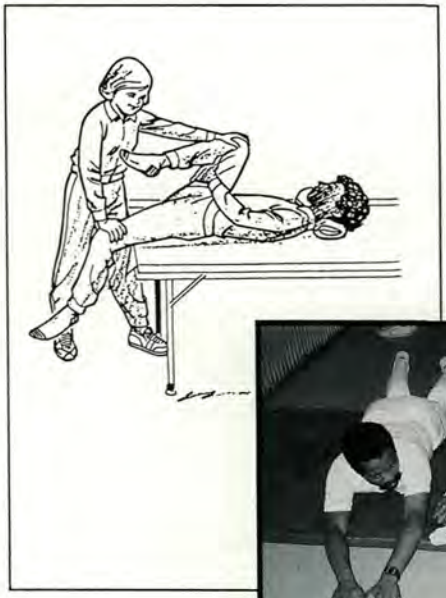

Figure 4. Stretching for persons with whole body dysfunction.

physical assistance (see Figures 3 and 4).

Strength and conditioning activities for participants in wheelchairs utilize exercise bands (brand names such as *Therabands* and *Isobands*[2]) to work the major muscle groups of the upper body (see Figure 5). Exercise bands were chosen because of their adaptability for persons with various movement disorders, as well as their popularity in exercise programs for nondisabled persons. Many exercises in this section are adapted from the Anderson and Bornell (1984) book, ***Stretch and Strengthen for Rehabilitation and Development.***

All activities included in the warm-up and conditioning section can be presented in integrated settings. For example, if a girl with profound handicaps wants to participate in a gymnastics program at a local community center, her mother, an assistant, or other members of the group can help her perform stretching and conditioning exercises. Some of the stretches might be the same as those used by nondisabled children in the program, while other stretches might be unique to that individual child. Similarly, a young man who wants to participate in his high school's weight training program can utilize exercise bands with assistance alongside peers in the weight room who are using other pieces of weight training equipment.

Training Day

Among the best known aspects of Special Olympics are games, tournaments, and meets that allow persons with similar abilities to compete against each other. To compete at Special Olympics events or for that matter in most competitive sport programs in the community, athletes must be able to perform the particular sport skill independently with virtually no equipment or rule modifications. Such strict adherence to rules is necessary to ensure standardized competitions across areas, chapters, and countries. Perhaps the most unique aspect of MATP is the concept of a *Training Day* in which participants are allowed physical assistance and modified equipment in order to compete. Furthermore, competition is not against other participants but rather against him/herself to demonstrate new skills and strive for *personal best* performances in a particular motor activity or sport skill. All participants who take part in a Special Olympics Training Day receive a **Challenge Medal** for demonstrating his/her personal best rather than place medals as is the case in traditional Special Olympics competitions.

For example, one participant had been working on moving her wheelchair by pushing with her hands. At the beginning of the program she would not even touch the wheels of her chair, but after participating in MATP, she can now independently reach down and touch the wheels of her chair and move the chair forward with only minimal physical assistance from her coach. This participant demonstrated this accomplishment, and she was then given the **Challenge Award** for demonstrating her personal best.

Another participant had also been working on pushing his wheelchair,

[2]*Therabands* are available from Sporttime, One Sporttime Way, Atlanta, GA 30340, and *Isobands* are available from Stretching, Inc., PO Box 767, Palmer Lake, CO 80133.

"... the program also should be viewed as a means of providing sport-based physical education and recreation opportunities for persons with profound handicaps who may never acquire skills needed to compete in official Special Olympics events."

but used feet rather than hands. At the beginning of training, he could not get his chair to move at all, but now he can independently move his chair one-half a meter in 5 minutes. This participant was given an opportunity to demonstrate his accomplishments and then received his **Challenge Award.**

There is no heating of athletes against each other as in traditional Special Olympics sport programs. Each participant competes against him/herself. It is also suggested that a Training Day culminate in a modified group game where everyone, including coaches, volunteers, friends, and family members all participate together. Such culminating activities can include modified games of soccer, volleyball, basketball for older participants, and relay races, tag games, or parachute play with younger athletes. The main idea of group activities is to allow everyone who has worked so hard during the training program to have fun and enjoy each other's accomplishments and skills, no matter how great or how small.

Summary

The purpose of this article was to review the new Special Olympics Motor Activities Training Program. MATP has been designed to fulfill Special Olympics continuing efforts to provide age and functionally appropriate sport activities in community settings for all persons with mental retardation, including those persons with profound handicaps. MATP is an integral part of the continuum of Special Olympics sport programs, and as such has been designed to assist athletes with profound handicaps develop skills necessary to move into official Special Olympics competitions. However, the program also should be viewed as a means of providing sport-based physical education and recreation opportunities for persons with profound handicaps who may never acquire skills needed to compete in official Special Olympics events. For these participants, MATP provides a more relaxed atmosphere where partial participation, adapted equipment, and rule modifications are encouraged. Furthermore, each participant in MATP is challenged to work towards his/her own personal best without burden of comparisons to other participants with different abilities. This unique aspect of MATP provides a means by which all persons with mental retardation, regardless of skill levels, can participate in and receive all benefits of sport training and participation.

Physical education and recreation for persons with profound handicaps have traditionally centered around therapeutic techniques and passive recreation activities in isolated settings. Special Olympics, and in particular Special Olympics' new MATP, suggests a more age and functionally appropriate approach to physical education and recreation that centers around motor activity and sport training in community settings. Such an approach provides participants opportunities to experience sport firsthand rather than having to watch from the sidelines. Such an approach provides participants with opportunities to interact and develop positive social experiences with persons without disabilities. Such an approach provides participants with opportunities to experience more meaningful lives in the mainstream of society.

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The Setting

A recent U.S. Olympic Committee Task Force on Sports for the Disabled recommended greater involvement of national governing bodies, such as U.S. Swimming (USS), in the training and development of elite athletes with disabilities. The purpose of this ***Focus on Training*** *is to describe the training and resulting performances of two elite swimmers with disabilities who were coached by individuals with the technical expertise gained from years of participation in elite USS programs.*

Nancy Anderson, a swimmer with cerebral palsy (Functional Class 2), was coached by Kevin Zielinski. Camille Black, a dwarf swimmer (Functional Class 5), was coached by Jon Moore. Kevin and Jon are elite swimmers who have competed regularly in national championship meets, most recently in the 1992 Olympic Trials. Neither Kevin nor Jon had prior experience coaching athletes with disabilities; their qualifications consisted primarily of their extensive knowledge of competitive swimming. They were matched with Nancy and Camille through an independent study course as part of their undergraduate degree programs at Michigan State University in January, 1992. This edition of ***Focus on Training*** *was produced by* ***Gail M. Dummer,*** *Michigan State University and athlete,* ***Nancy E. Anderson.***

Focus on Training *presents a biographical sketch of elite athletes and their approach to training. Athletes, coaches, and/or associations with athletes wishing to be recognized in this section of* ***Palaestra*** *should request information from* ***Ron Davis,*** *Department of Physical Education, Ball State University, Muncie, IN 47306-1099 (317) 285-1462.*

Nancy Anderson
Age: 39
Ht/Wt: 5'3"/107 lbs

Nancy Anderson and Camille Black at the opening ceremonies of the 1992 Paralympic Games in Barcelona.

Background

Nancy was born with athetoid/spastic cerebral palsy affecting all four limbs, trunk, neck, and speech. Nancy uses a motorized wheelchair during the majority of the day, occasionally propelling a manual wheelchair with her arms or legs. At age 6 Nancy began taking weekly swimming lessons at the YMCA. She continued swimming until age 20, earning several American Red Cross swimming certificates, achieving a 50-mile cumulative distance mark, and learning adapted synchronized swimming routines.

Nancy took a respite from swimming until graduating from Michigan State University in 1974. Immediately thereafter she joined the National Wheelchair Athletic Association (NWAA) and entered her first competitive swimming meet. The NWAA classification system was not designed for persons with cerebral palsy, and she was placed in Class V. She won the 100-yd backstroke in a time of 4:02 because she was the only female entrant. The following year she was reclassified as a Class IA, and swam a 25-yd backstroke in approximately 1:15.

Nancy was introduced to cerebral palsy sports in 1977. At the first National Cerebral Palsy Games she swam a 25-yd backstroke in 1:19. A few weeks later she competed as part of the first USA Cerebral Palsy Sports Team. During the years that followed, Nancy gained tidbits of advice from several coaches and pieced them together as best she could. However, very few coaches provided her with structured workouts, and none gave her a long-term training schedule. Despite the lack of quality coaching, Nancy consistently medaled in national and international competitions.

In January, 1992, Kevin Zielinski became Nancy's personal coach in preparation for the Barcelona Games. When Kevin met Nancy her workouts typically consisted of a 40-min continuous backstroke swim, during which Nancy completed about 700 yd. (Nancy uses the backstroke in both backstroke and freestyle events.) Kevin's initial assessment of Nancy's skills suggested that she needed to improve muscular strength and endurance, stroke techniques, and starts and turns. Kevin was impressed with Nancy's motivation to perform in practices and competitions, as well as her dedication to the sport.

Early-Season Training (January 15-April 15)

Kevin's early season goals for Nancy included improving strength, endurance, and aerobic capacity. These were accomplished by increasing the frequency of her swimming workouts from once to twice a week, with an average distance of about 800 yd per workout. Kevin perceived Nancy as a middle-distance swimmer because the durations of her events (about 2 min for a 50-yd swim and about 4 min for a 100-yd swim) are similar to times of a collegiate swimmer who competes in 200- and 400-yd events. He designed her workouts to train the energy systems needed for middle-distance events. A sample early-season practice is described in Figure 1.

During these workouts, Kevin worked on Nancy's stroke techniques by encouraging her to adopt a more efficient pulling pattern, and to use her legs in more of a flutter-kicking motion than a scissors-type kick. (Nancy has very minimal use of her legs.) Although Nancy's *new and improved* kick contributed little to forward movement, it did result in a higher, more streamlined body position. Nancy also worked on estimating the distance from the backstroke flags to the end of the pool as a means of improving her technique on turns.

Kevin designed a strength training program for Nancy that consisted of surgical tubing exercises to improve the strength of the biceps, triceps, and latissimus dorsi muscle groups (2 sets of 10 repetitions per exercise). Nancy also used surgical tubing

exercises to simulate the arm pulling pattern in backstroke (30-50 repetitions per session). The strength program also involved sit-ups and leg-lifts (2 sets of 10 repetitions per exercise). Nancy completed three strength workouts per week in addition to her swimming workouts.

Mid-Season Training (April 15-August 15)

Although Nancy's times had already qualified her as a member of the U.S. contingent to Barcelona, she participated in a time trial meet in mid-April to secure her spot on the team and to evaluate the success of her training program. Nancy's time in the 50m backstroke, 1:57.55, was close to a personal best and well under the qualifying times for Barcelona.

Nancy and Kevin re-evaluated her training goals at this point and agreed to increase the frequency of her workouts to three times per week. Kevin increased the distance of Nancy's workouts to an average of 1500 yd per workout (comparable in workload to a 6,000-yd practice for a collegiate swimmer). Nancy continued to work on endurance and aerobic capacity, and added sprint training to some workouts. Kevin also started to help Nancy with pacing her races more evenly; her approach had been to swim as fast as she could at the beginning of a race and then *die* as she approached the end of the race. Nancy also continued with the strength training program.

Kevin was unable to fully implement this mid-season plan for two reasons: (a) Nancy frequently gets chilled when she swims and is sometimes unable to complete workouts of longer duration, and (b) Nancy became ill with a cold on several occasions, affecting her practice schedule. Nevertheless, Nancy usually practiced three times a week, occasionally dropping down to one or two practices per week. A sample mid-season practice is outlined in Figure 1.

At the Paralympic Training Camp at Ball State University in July, 1992, Nancy and Kevin had an opportunity to watch videotapes of Nancy's swimming from prior years. Both were amazed at the improvements in stroke technique that had been accomplished in recent months. Nancy had learned to use her arms more effectively, maintain a higher body position, and turn with greater speed (and fewer collisions with the end of the pool). She left the camp very confident about achieving her goals in Barcelona!

Late-Season Training (August 15-Barcelona)

The training goals during the late-season period included maintenance of stroke techniques and aerobic conditioning, as well as highly-focused sprint training in preparation for Nancy's races in Barcelona. During the last few weeks in August Nancy trained three days a week and dropped her per-workout yardage to approximately 750m in a 50m pool (most early- and mid-season practices were conducted in a 25-yd pool). A typical late-season practice is described in Figure 1.

On some occasions the late-season workouts consisted of a simulated race day. On these days, Kevin stretched Nancy's arms and upper body longer than usual, after which Nancy got in the pool and swam a 50m or 100m backstroke for time. Nancy had found this routine to work well in the past because she was able to sprint without chilling and subsequent muscle tightening. Upon seeing her perform, Kevin concurred.

Kevin prepared a flexible workout schedule for Nancy to follow in Barcelona. The average practice consisted of 300-400m with a 100m warm-up, and the remaining distance consisting of 12 1/2m and 25m sprints, 50m build-up swims, and easy swimming. Kevin recommended swimming every other day in Barcelona. Starts and turns in the competition pool were a priority because the swimming pool in Barcelona did not have water-level gutters at the ends of the pool.

Early Season

1x200yd	swim at warm-up pace
10x50yd	swim backstroke on 2:05 interval (the interval permitted 15-20s rest after each 50yd swim)
1x100yd	easy backstroke swim
800 yd	(60 min)

Mid Season

1x200yd	swim at warm-up pace
6x150yd	backstroke swim with a faster pace in each successive 50yd of the 150yd swim
8x25yd	backstroke swim, alternating 25yd swims sprinting the last 10yd, and 25yd swims sprinting the first 10yd
1x200yd	easy backstroke swim
1500 yd	(90 min)

Late Season

1x200m	swim at warm-up pace
2x50m	backstroke swim for time, alternated with 2x50yd easy backstroke swim, generous rest interval
1x200m	easy backstroke swim
2x10m	sprint backstroke swim, swim easy for remainder of 25yd
1x200m	easy backstroke swim
750m	(75 min)

Figure 1. Sample Practices Completed by Nancy Anderson.

Date	Age	Meet	Event	Time	Place
6/84	31	International Games for the Disabled Nassau County, NY	25yd free	1:12.41	
7/89	36	National Cerebral Palsy Games Mankato, MN	25yd free	59.38	
			50yd free	1:59.32	
7/91	38	Paralympic Trials New York	50m free	2:01.92	
			100m free	4:02.04	
1/92	39	Grand Rapids, MI	25yd free	50.47	1st
			50yd free	1:59.42	1st
			50yd back	2:03.35	1st
4/92	39	Time Trial Meet University of Michigan	50m free	1:57.55	1st
9/92	39	Paralympic Games Barcelona, Spain	50m free	1:58.13	6th
			100m free	4:06.75	6th
			50m back	2:03.18	6th

Figure 2. Nancy Anderson's Time Progressions.

Barcelona Results

Nancy's training served her well, as evidenced

by her times and finish places (see Figure 2). She maintained good body position throughout her races, timed her turns effectively, and paced her races evenly. However, Nancy experienced difficulty at the starts and turns because of the absence of a gutter to grasp, as well as muscle tightening because of the cool water temperature. Nevertheless, her times, at age 39, were close to her personal bests, some of which were established more than 10 years ago. Her 6th place finishes also were impressive, given that she was competing against swimmers more than 15 years her juniors, and given that none of the medalists in her events had cerebral palsy.

Camille Black
Age: 30
Ht/Wt: 4'2"/85 lbs

Background

Camille has achondroplasia, the most common form of dwarfism, associated with short limb length. She started swimming at age four at the suggestion of her physician, and joined a competitive swim team in her home town of Pascagoula, Mississippi, at age five because it was fun. She competed in all strokes, but performed best in the breaststroke events. As she got older and her height disadvantage became more pronounced, it was more difficult to win, and therefore, swimming was not as much fun as it had been. Camille's competitive swimming career ended at age 13.

Camille came out of her athletic retirement in 1991 and entered swimming events at the July, 1991, DAAA nationals in Dallas, TX. She surprised herself, and most of her competitors, by winning two events in times that were just short of national records. Camille was encouraged to prepare for the Paralympic Games in Barcelona.

From July through December, 1991, Camille trained without the benefit of coaching. Her weekly routine consisted of one or two 30-60 min workouts at a YMCA near her home in Lansing, Michigan. She swam continuous laps of freestyle with essentially no use of stroke technique drills or interval training. She rarely completed more than 1500m in a practice session.

In January, 1992, Camille began to train under Jon Moore's supervision. Jon immediately noted many deficiencies in stroke technique, as well as inadequate training for international level competition. The problems with Camille's freestyle stroke included: (a) breathing to only one side of the body and lifting the head too high for the breath, (b) entering the water with a flat hand resulting in too many air bubbles on the hand, (c) pulling with the hands and arms outside rather than underneath the body, and pulling with a dropped elbow, (d) recovering the arms with a straight-arm *windmill* movement, and (e) kicking with only 3-4 beats per arm cycle, and using a wide, deep kick. Camille exhibited better technique in the breaststroke, but swam with very low body position and relatively little power from her arm stroke.

Early-Season Training (January 15-April 15)

Jon's first action was to increase Camille's training to seven practice sessions and approximately 20,000m per week. His early-season goals for Camille were to develop a good aerobic base and improve her muscular strength and endurance. He began to improve her stroke techniques through verbal instructions, demonstrations, and regular use of stroke drills. Camille also learned an efficient freestyle *flip* turn. Most yardage during early-season workouts was accomplished using the freestyle stroke. A sample early-season practice is described in Figure 3.

Camille found the early-season workouts to be very difficult; she believed that three workouts per week were satisfactory preparation for Barcelona. She did not understand the value of stroke technique drills or the importance of establishing performance goals. Jon's role as a coach went beyond designing workouts, to working on the mental aspects of performance.

Mid-Season Training (April 15-August 15)

In mid-April Camille participated in a time trial meet to secure her spot on the Paralympic team. She excelled at those time trials, posting times of 47.20 in the 50m freestyle, 1:43.44 in the 100m freestyle, and 2:12.09 in the 100m breaststroke. Her goals changed from making the team to winning medals at the Paralympics. Camille's attitude was positive, and she was tolerating the practice workload well.

At this point, Jon increased Camille's training to nine workouts and approximately 28,000m per week. Jon continued to work on aerobic capacity and stroke/turn techniques, but added some anaerobic swims to Camille's workouts, worked on pacing her races, and initiated goal-setting and visualization exercises designed to enhance her performance in Barcelona. Camille's evening workouts occurred at local YMCAs, but Jon also arranged for her to train with a local USS age-group team for morning workouts. A sample mid-season practice is outlined in Figure 3.

The transition to more frequent and more intense practices was difficult for Camille, both physically and mentally. At times she found it difficult to give adequate attention to family and work, but the support of her family and friends helped her to accept the training routine. Camille began to view her training regimen as productive and necessary when she accomplished dramatic improvements in stroke techniques and in practice times. She learned the importance of performing drills correctly as a means of improving her stroke techniques. Her time for a 25m freestyle sprint kick improved from :50 to :25, and her time in the 100m breaststroke dropped approximately 20 sec. Camille was proud when she accomplished a particularly difficult *goal set* that Jon asked her to attempt about twice a month. This goal set consisted of a series of 10x50 yd freestyle swims on a descending interval. She was also proud of the muscular development and improved physical fitness that resulted from her work in the pool.

Late-Season Training (August 15-Barcelona)

Jon's goals for Camille during the late season included maintaining her aerobic conditioning, improving her anaerobic (sprinting) abilities, and building her kick. A sample late-season practice is described in Figure 3. Jon developed dietary guidelines for Camille for the several weeks preceding and including the Barcelona Games. During this period, coach and swimmer also worked on visualizing Camille's races. Both had watched Olympic swimming events on telecast, so they were familiar with the pool and with the pre-event and awards ceremony procedures used in Barcelona. The images and information from the Olympics were incorpo-

Early Season

1x200m	swim freestyle
1x400m	swim, alternating 50m freestyle and 50m breaststroke
8x75m	freestyle drills on a 1:45 interval • zipper drill for 25m • 10 kicks per side for 25m • breathe every 7th stroke for 25m
6x200m	swim freestyle on a 4:00 interval, emphasizing stroke technique and swimming the second 100m of each 200m faster than the first 100m (negative split)
8x50m	swim freestyle on a 1:15 interval, breathing every 3rd, 5th, 7th, and 9th stroke by 50m
3x100m	kick freestyle on a 3:30 interval, emphasizing a tight, fast kick
1x100m	easy freestyle swim
3,200m	(2 hr)

Mid Season

1x600m	swim, alternating 50m freestyle, 25m breaststroke, 25m butterfly
5x100m	swim, alternating 50m freestyle and 50m breaststroke, with the first 25m of each 50m using a stroke drill, and the second 25m swim
6x50m	swim butterfly on a 1:30 interval
1x300m	swim breaststroke
4x50m	swim butterfly on a 1:20 interval
1x200m	swim breaststroke, faster than the first 200m of the 300m swim
2x50m	swim butterfly on a 1:10 interval
1x100m	swim breaststroke, faster than the first 100m of the 200m swim
2x300m	pull freestyle, breathing every 3rd, 5th, and 7th stroke by 100m
6x50m	swim breaststroke, first 25m sprint from a dive start, second 25m easy swim
4x25m	swim freestyle, no breath
1x100m	easy freestyle swim
3,400m	(2 hr)

Late Season

1x600m	swim, alternating 100m freestyle with 50m breaststroke
7x75m	swim 25m freestyle, 25m butterfly, 25m freestyle
7x75m	swim 25m breaststroke, 25m butterfly, 25m breaststroke
10x50m	swim freestyle on a descending interval (1st 50m @ 1:09, etc.)
1x100m	sprint freestyle *all out* in less than 1:50
1x100m	easy freestyle swim
2x200m	kick freestyle for time, 2nd 200m faster than first 200m
2x200m	kick breaststroke for time, 2nd 200m faster than first 200m
2x200m	pull freestyle, breathing every 3rd, 5th, 7th, and 9th stroke by 50m
1x100m	easy freestyle swim
3,650 m	(2 hr)

Figure 3. Sample Practices Completed by Camille Black.

Date	Age	Meet	Event		Time	Place
7/91	29	DAAA Nationals	50yd	free		1st
		Dallas, TX	50yd	brst		1st
4/92	30	Time Trial Meet	50m	free	47.20	1st
		University of Michigan	100m	free	1:43.44	1st
			100m	brst	2:12.09	1st
6/92	30	Master's swimming meet	50m	free	46.99	
		Bay City, MI	100m	free	1:44.71	
			100m	brst	1:59.12	
7/92	30	Master's swimming meet	50m	free	47.17	
		Canton, OH	100m	free	1:43.56	
			50m	brst	54.28	
			100m	brst	2:00.05	
			50m	fly	53.59	
9/92	30	Paralympic Games	50m	free	42.33	2nd
		Barcelona, Spain	100m	free	1:37.42	5th
			100m	brst	1:54.79	1st

Figure 4. Camille Black's Time Progressions.

rated into Camille's visualization routine, which consisted of visualizing each of her races from preparation in the ready room through the awards ceremony.

Jon planned a two-week taper for Camille, with one workout per day. Taper workouts generally consisted of a long warm-up swim, some sprinting, some pace work, some breath-control work, and a short 300-500m aerobic set. Twice during the two-week taper, Camille performed a 600-800m swim to help maintain aerobic conditioning. Four times during the taper she did *broken swims* in her events. In the broken swims she swam a short segment of her event at race pace, rested a few seconds, then swam the next segment at race pace, etc. Her goal was a cumulative time for the race segments that was faster than the world record. During the taper period, Camille continued to visualize her races at least three times per week. Jon made an audio tape to assist Camille with the visualization exercise in Barcelona.

Barcelona Results

Camille's training paid off. She was the first member of the Dwarf Athletic Association of America ever to win a gold medal in Paralympic competition (Mitch Seidenfeld won a gold in table tennis later in the 1992 Games). She won the 100m breaststroke with a world record time of 1:54.79 and was the silver medal winner in the 50m freestyle with a 42.33. Camille noted that her starts, turns, and finishes were better than other athletes in her classification; in fact, she was the only USA athlete in Class 5 to use a flip turn. Because of her meet experience and visualization exercises, she felt confident about her ability to perform well. Before she entered the pool Camille reported that she had visualized the situation so effectively before arriving in Barcelona that she felt that she "had been in that pool before." She complimented her coach for preparing her so thoroughly and dedicated her 100m breaststroke gold medal race to Jon.

Summary

Elite world-class athletes are a rare commodity. Each represents an intrinsic potential well beyond the *average*, yet each requires the opportunity to recognize and nurture that potential. Nancy and Camille are elite world-class athletes who each experienced significant enhancement of their intrinsic potentials because of access to sohpisticated and focused coaching and training. While their individual routines are instructive, of more importance is the recognition that the resources of USS and other NGBs can indeed play a major role in tapping the potential of America's pool of elite athletes with disabilities.

NEW PRODUCTS

ABLE-OFFICE FILE CAROUSEL

A new AbleOffice file carousel, designed for easy use especially for the mobility impaired, has been developed by the Georgia Tech Center for Rehabilitation Technology. The Home/Office File Carousel is 29 in. in diameter and is rotated easily, even when fully loaded. The new carousel can hold up to two ft of files, magazines, or similar material between its partitions. Its compact size and simplicity makes it suitable for home or commercial office use. Further, it is compatible with other AbleOffice modules.

According to its designers, the device was produced to assist people unable to easily access vertical files or shelves. The carousel makes study, research or detailed office work simple. For the more severely disabled, an optional small brake, which can hold the carousel in place, is available. Colored smoke gray to fit office decor, the carousel is made of sturdy polystyrene with metal separation rods in anodized aluminum. Contact: Center of Rahabilitation Technology, Inc., 490 Tenth Street, NW, Atlanta, GA 30332-0156 at 1-800-457-9555, Telex: 404-875-9409, or Reader Service Card #255.

RAISED-LETTER SIGNS

One does not have to be blind to appreciate the benefits of raised-letter signs. The popularity of raised-letter signs and decals is growing both because of the enhanced visibility these signs provide and a new federal law (ADA). ADA mandates all new and existing signs indicating permanent locations in many types of buildings must be legible to the blind—which requires braille letters and raised letters. Raised pictograms are optional. Included are state and local government buildings, as well as businesses such as convenience stores, gas stations, and motels.

For outdoor applications, Hy-Tech Forming uses environmentally resistant ***Makrofol*** **EPC** (enhanced performance) film. ***Makrofol*** **EPC** film provides excellent resistance to chemicals—including cleaning solvents, gasoline and gasoline fumes—and to environmental attacks from wind, rain and snow, making it ideal for outdoor applications, such as motel door numbers or rest room and pump signage at gas stations.

For more information on signs contact: Greg Nelson, vice president, marketing, Hy-Tech Forming, Inc., 2329 West Mescal, Office 303, Phoenix, AZ 85029. For more information on ***Makrofol*** **EPC** film, contact: Polymers Marketing Communications Department, Miles Inc., Mobay Road, Pittsburgh, PA 15205-9741, or Reader Response Card #256.

ECO™-BADGE

The entrepreneur once credited with debugging the U.S. House of Representatives has created a new product designed to foster awareness of air pollution on a personal level. Gary Short, president of Vistanomics, Inc., introduces the ECO™-Badge, a personal ozone monitoring device. Worn on clothing, the ECO™-Badge gives users a reading of their direct exposure to harmful ozone.

Short explains that there is good ozone, the upper atmosphere gases that shield the planet from the sun's harmful rays, and there is bad ozone. In the lower atmosphere bad ozone is one of several gases that make up air pollution, or smog. Bad ozone is produced when sunlight reacts with hydrocarbons and nitrous oxides emitted by automobiles, dry cleaners, auto body shops, gas stations, and millions of other smaller sources. Exposure to bad ozone can cause and/or aggravate respiratory problems: coughing, wheezing, painful breathing, nasal congestion, sore throat, and nausea.

The ECO™-Badge is compact, easy to use, and gives users an accurate reading of their ozone exposure. It is being worn by workers in hazardous areas, athletes who exercise outdoors, people with respiratory ailments, and others who simply wish to make a statement of their environmental awareness. For more information contact: Gary Short, Vistanomics, Inc., 230 N. Maryland Avenue, #310, Glendale, CA 91206 or Reader Response Card #257.

SEAT CONTROLER

The Seat Controler is an automatic toilet seat lifter controlled by a foot pedal. It performs three important functions, raises the seat without bending down, auto-

matically returns the seat down without touching, and eliminates seat banging on up/down motion. It is fully adjustable to fit all toilets including those for the disabled. It is made with durable white PVC plastic and can be installed on either side of the toilet on hard floor or carpeting. An adjustable deceleration pump prevents the banging by varying the descend speed of the seat. Contact: Trendy Merchandise Specialist, 9016 E. Aster, Scottsdale, AZ 85260-4503 or Reader Response Card #258.

FLEX-SPRINT — AN ATHLETE'S AID

As part of his pursuit to become the world's fastest sprinter with a lower limb prosthesis, Dennis Oehler manually adjusted his prosthesis to maximize his sprinting ability. What Oehler—and a growing number of amputee athletes wanted—however, was a leg designed especially for competitive sprinting. Flex-Foot, Inc., a Laguna Hills, CA-based manufacturer of technologically-advanced lower limb prostheses, has worked with athletes and their prosthetists to develop the Flex-Sprint. The new design features a special *plantar-flexed* toe that allows the runner to land on the forward two inches of the toe, as is customary with able-bodied sprinters, instead of rolling onto the ball of the foot. This angle produces a consistent spring compression rate of the pylon which maximizes its energy storage and release potential. The company's successful Modular Flex-Foot system, which has become a standard sports prosthesis worldwide, has a vertical pylon setting of zero degrees for running. During sprinting, however, the athlete tends of lean forward, compressing the toe early and shortening the toe lever. The dropped toe of the Flex-Sprint, a modification of the Modular model, maintains the extended toe lever during this power stroke.

The Flex-Sprint is designed with a broad upper pylon for either direct lamination or connection with the Flex-Foot Graphite T System, and has been engineered to withstand the high forces of the extended toe. To prevent hyperextension at full sprinting stride, Flex-Foot advises athletes to use the short safety heel supplied with the product. Contact: Flex-Foot, Inc., 27071 Cabot #106, Laguna Hills, CA 92653 or Reader Response Card #259.

EASY RIDERS FROM PCA

Young children can now enjoy the physical and emotional rewards of swaying and bobbing on the appealing family of Easy Riders offered by PCA Industries, St. Louis, MO. Frisky replicas of ponies, mustangs, and zebras invite dynamic make-believe play that stimulates coordination, balance, and upper-body development. Heavy-duty steel springs control the range of motion to assure the riders' stability and safety. Formed from durable, maintenance-free aluminum castings, child-scaled Easy Riders are finished in colorful enviro-baked enamel that resists weathering. Easy to mount for a comfortable and secure seat, Easy Riders are lively additions for any preschool and early elementary play area. Contact: PCA Industries, Inc., 5642 Natural Bridge, St. Louis, MO 63120 or Reader Response Card #260.

VIDEO ILLUSTRATOR

Peak Performance Technologies of Englewood, CO, has unveiled the Peak Video Illustrator, a powerful video and computer-based system that makes it easy for athletes of all abilities to improve technique and performance. The Peak Video Illustrator helps both coaches and athletes comprehend and evaluate movement in all sports; from comparing individual technique to tracking team movement.

The Peak Video Illustrator is an easy-to-use system that provides comprehensive biomechanical sports analysis. It does this by transferring a videotaped sequence to computer memory. Once transferred, the sequence can be immediately retrieved and replayed for individualized coaching and instruction using a variety of helpful tools. The versatile Peak Video Illustrator shows full or half-screen views of athletes in forward and reverse speeds, slow and fast speeds, and even multiple-screen progression. Side-by-side comparisons of the athlete to an elite performer demonstrating optimal technique can be made as well. The coach or athlete can even select the exact video picture desired instead of replaying the entire event sequence.

The Peak Video Illustrator makes it possible to assess an athlete's progress over time and quickly pinpoint incorrect techniques. Events such as ball release, ball contact, and heel strike can be analyzed in detail. And, an optional module computes and compares speeds, distances, and angles between two athletes, or of the same individual throughout the sports sequence. Contact: Peak Performance Technologies, Inc., 7388 S. Revere Parkway-#601, Englewood, CO 80112 or Reader Response Card #261.

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Publication REVIEWS

DiNumbile, N. A. (Ed) (1991). **Clinics in Sports Medicine: The Exercise Prescription *10*(1).** Philadelphia, PA: W.B. Saunders Company (Harcourt Brace Jovanovich, Inc; ISSN 0278-5919. Subscriptions: individual, $76/yr; institutions, $90/yr; foreign, $96/yr+$8 postal charge).

Although the content of ***Clinics in Sports Medicine*** is primarily aimed at physicians, most individual presentations (each written by a different author) are appropriate for non-physicians. Although only one chapter (Physical Activity from Rehabilitation to Independent Community Function: The Role of Physical Activity in Handicapping Conditions) deals specifically with persons possessing handicapping conditions, several chapters have direct applications to readers of ***Palaestra***— The Role of Exercise in the Primary and Secondary Prevention of Coronary Artery Disease, Pulmonary Concerns and the Exercise Prescription, Exercise and the Elderly, Keeping Fit When Injured, and Back Pain and Exercise Prescription. Virtually all chapters have implications for professionals involved in adapted physical education, therapeutic recreation, and special sport programs involving participants with handicapping conditions. The forward is by Arnold Schwarzenegger, Chair of the President's Council on Physical Fitness and Sports.

Eichstaedt, C.B., Wang, P.Y., Polacek, J.J., & Dohrmann, P.F. (1991). **Physical Fitness and Motor Skill Levels of Individuals with Mental Retardation: Mild, Moderate, and Down Syndrome Ages 6-21.** Normal, IL: Illinois State University (Department of Health, Physical Education, and Dance, and the ISU Graduate School).

This represents continuation of a longitudinal study started in 1980 by these researchers who conducted three previous extensive test administrations over a ten-year period. The most recent gathering of test data illustrates physical fitness and motor skill performances of 4,464 individuals (CA = 6 to 21) labeled as mildly mentally retarded (N = 1,051; f = 494; m = 557), moderately mentally retarded (N = 2,296; f = 917; m = 1,379), and those with Down Syndrome (N = 1,117; f = 537; m = 580) (N = 4,464) from 127 schools, agencies, and Special Olympic groups in Illinois. Specific purposes of this study

were to (1) compare 1980, 1985, and 1990 Illinois scores of students with mental retardation; and (2) develop norm referenced tables for each subject group in 15 test items (height, weight, triceps skin-fold, subscapular skin-fold, calf skin-fold, sit and reach, modified sit-ups, 6-min run (ages 6 to 11), 9-min run (ages 12 to 21), 50-yd dash, flexed arm hang, shuttle run, standing long jump, stork stand, and basketball wall bounce.

To highlight general differences among groups, nonspecific and loose comparisons were made using mean scores for all test items. Separate tables were developed for both boys and girls. Due to a comparatively small number of subjects, the following age groups were combined to show general differences among groups— 6 to 9, 10 to 13, 14 to 17, and 18 to 20— for skin-fold comparisons.

Separate line graphs for boys and girls show developmental progressions and are used to illustrate comparisons among the three groups of subjects for all test items. Percentile norm tables for each age, each sex, and each classification of mental retardation are included. A full description of the test battery includes all instructions, illustrations, score sheets, and information letters sent to schools and agencies.

Grosse, S. (Ed) (1991).

Sport Instruction for Individuals with Disabilities: The Best of Practical Pointers.

Reston, VA: AAHPERD (1900 Association Drive, 22091; ISBN 0-88314-507-3, paperback, 314 pg).

Between 1977 and 1982 the AAHPERD Information and Research Utilization Center published a series of mongraphs entitled ***Practical Pointers.*** In 1989, 20 original ***Practical Pointers*** were compiled and published in book form. ***Sport Instruction for Individuals with Disabilities: The Best of Practical Pointers*** continues the ***Practical Pointers*** tradition. The best of the originals are included. Equally important, new ***Practical Pointers*** have been added. Teachers have written for teachers in sharing what practitioners have learned in providing instructional sport programs for individuals with disabilities. Practical information is being passed on, enabling continued growth and expansion of opportunities in sport for special populations.

Three sections focus on team sports, individual/dual sports, and organization and administration. Ten new ***Practical Pointers***, written especially for this publication, include bowling, golf, gymnastics, mainstreaming for individual sports, pickle-ball, tennis, track and field for all persons, computer applications, intramural programs, and safety and injury prevention, each approached from perspectives of participants with disabilities. Sports from previously published ***Practical Pointers*** include team soccer, wheelchair basketball, wheelchair field events, wheelchair track events, and weight training for wheelchair sports. Adaptations are presented for students with crutches in badminton, golf, archery, and tennis; unilateral and bilateral upper-arm amputees in archery, badminton, baseball, softball, bowling, golf, and table tennis; and teacher-made adapted devices for archery, badminton, and table tennis. Mainstreaming individuals with physical handicapping conditions for team sports is also included.

This is a highly recommended resource for individual teachers, coaches, and leaders; as a resource for ongoing physical, recreational, and sport programs; professional preparation programs; libraries and other information centers.

Kennedy, D.W., Smith, R.W., & Austin, D.R. (1991).

Special Recreation: Opportunities for Persons with Disabilities (Second Edition).

Dubuque, IA: Wm. C. Brown Publishers (2460 Kerper Boulevard, 52001; ISBN 0-697-10965-8, hardcover, 371 pg).

This updated textbook, written primarily for undergraduate students in recreation (especially those in their first two years of study), focuses upon the many facets of special recreation programming, not disabilities. The term *special recreation* is used to distinguish chosen recreation participation from therapeutic recreation. Content concentrates upon nonclinical approaches and emphasizes delivery and value of special recreation opportunities for individuals with disabilities. Strategies for integrating persons with disabilities into regular recreation programs and activities are highlighted.

Each of the four distinct parts of this textbook— (I) *Introduction and Overview* (scope of special recreation services, including important concepts and terminology), (II) *Program and Facility Planning* (actual program planning and implementation, including detailed descriptions of exemplary special recreation programs), (III) *Special Recreation Program Areas* (examples of program areas and activities that have proven effective in meeting recreational needs of people with disabilities), and (IV) *Resources, Legislation, and Trends* (information on community resources and legislation that relates to special recreation services) — is preceded by an introductory statement highlighting its content. Each chapter includes a summary of key points, suggested learning activities, and selected references.

Several appendices contain useful information about materials and resources, including guidelines for community-based recreation programs, selected organizations serving persons with disabilities, athletic and recreational organizations for persons with disabilities, and assistive sports resources.

McArdle, W.D., Katch, F.I., & Katch, V.L. (1991).

Exercise Physiology: Energy, Nutrition, and Human Performance (Third Edition).

Philadelphia: Lea & Febiger (200 Chester Field Parkway, Malvern, PA 19355; ISBN 0-8121-1351-9, hardcover, 853 pg, $47.50).

Although not developed for or including specific attention to persons with disabilities, this comprehensive text can serve as an excellent reference for individuals who serve special populations through physical, recreational, and sport programs. Basic concepts and relevant up-to-date scientific information, appropriately balanced between theory and practice, provide a foundation for understanding physiology of exercise, uniting such topics as physical conditioning, diet, nutrition, and weight control.

Abundance of new, updated, and expanded coverage includes such topics as anaerobic power and capacity and aerobic fitness testing; new sections on plyometrics and resistance training for children, and factors related to strength improvements with training in men and women; effects of caffeine and bicarbonate drinks prior to exercise, latest findings on steroid use among adolescent and adult males and females, and protein requirements; new findings on bioelectrical impedance analysis and other less costly techniques, and body density assessment of body composition.

Nine appendices provide extremely helpful and valuable information about nutritive values, metabolic computations, energy expenditures, body composition, computerized meal and exercise plans, and body profiles. This is a text with broad applications for all populations that moves methodically from fundamental principles to advanced applications without necessity of an extensive background in science.

Ossell, J. (1991).

Sante' (For Good Health): Food Analysis Program.

Hopkins, MN: Hopkins Technology (421 Hazel Lane, 55343-7116; software pkg for IBM PC's & 100% compatibles; 5 1/4" & 3 1/2" disks; hard disk with 2 M available; min 512K RAM/640K suggested; mono CGA, EGA, or VGA monitor & adapter; MS-DOS 2.0 or higher; printer recommended; $59.95).

This is an all-in-one weight control, diet planning, exercise, and recipe software package. ***Sante'*** helps an individual control weight, while getting necessary vitamins, minerals, and nutrients from any food available in grocery stores, restaurants, or gardens. ***Sante'*** monitors an individual's progress by checking each food eaten for 30 essential nutrients. Instant feedback provides total caloric intake; protein, carbohydrate, fat, and alcohol content; cholesterol, sodium, and fiber information; essential vitamins and minerals; daily caloric needs based on personal profile; calories burned in nearly 200 selected exercises; and personalized plans for changing one's weight. Colorful charts display caloric and nutrient breakdowns on specific foods, recipes, or complete meals based on latest government recommendations (including over 500 items from favorite fast food restaurants).

With powerful software and extensive food data one can make up meals and recipes he/she loves to eat, and with computer-fast precision, see exactly how each fits into personal dietary needs.

Meals, days, recipes, and individual foods are analyzed and displayed relative to RDAs (Recommended Dietary Allowance), including percentages and actual values according to personalized requirements. ***Sante'*** gives instant access to nutritional information on nearly 3,000 foods, and provides food, recipe and meal costs based on prices paid; nutritional guidelines in terms of one's personal profile; common measurement conversions; general health guidelines; and a complete recipe database function. An individual does not have to be computer literate to use ***Sante'***—it is extremely user friendly, and has received many positive endorsements from professionals in various disciplines and specializations, including medicine, nursing, health/fitness/wellness, computer, and physical sciences.

Project FIT. (1991).

Mainstreaming Through Fitness.

Longview, WA: Disabled International Foundation (Box 1781, 98632; VHS video, 18 min; $29.95).

This, the fourth Project FIT video (Fitness Involving Teenagers and Youth with Disabilities), shows the importance of various physical, sport, and recreational activities in lives of individuals with disabilities (especially teenagers and youth). Program participants speak for themselves, emphasizing such important qualities as not to give up on one's self, become involved and participate actively, and recognize that one can do anything he/she wants. Representative of activities in which individuals with disabilities are shown participating actively include skiing and other winter activities, aquatics, parachute play, bowling, weight training, and gymnastics. Participants in this video are from Washington School for the Blind, Washington School for the Deaf, Oregon State University special fitness and motor clinic, and special community programs in Longview, Washington. Professional leaders from each of these programs describe and discuss their programs, emphasizing importance for and contributions to their program participants.

The Challenge of Independence.

Roanoke, VA: A/V Health Services (PO Box 1622, West Sacramento, CA 95691; VHS, 30 min; $39.95).

Four individuals—one who is blind, another deaf, one who became a quadriplegic from an accident, and the other labeled as mentally retarded—tell in their own words how each has overcome disabilities to achieve greater levels of personal independence. Consistent threads in statements made by each of these individuals are personal perceptions of such traits as the power of success; personal desire to meet challenges of disability, keep on going, and not to give up; taking control of one's own life; doing what one can, as well as possible, and being proud of it; importance of having goals and making decisions about these goals; overcoming fears; and roles of rewards and responsibilities to satisfying and enjoyable lives. Important in attaining high quality of life for each of these successful individuals has been active and regular participation in a variety of recreational activities. Their stories are both educational and inspirational, especially to individuals with disabilities who need a little help in taking that first step towards greater personal independence. The video is also appropriate to help able-bodied individuals—professionals, students, and the general public—develop better understanding of individuals with disabilities, from their perspectives.

Rohnke, K. (1989-1991). Project Adventure.

Cowtails and Cobras II: A Guide to Games, Initiatives, Rope Courses & Adventure Activities.

(ISBN 0-8403-5434-7; paperback, 210 pg; $16.50).

The Bottomless Bag: Bag of Tricks.

(ISBN 0-8403-6633-7; paperback, 366 pg; $29).

Bottomless Baggie.

(ISBN 0-8403-6813-5; paperback, 136 pg; $16.50).

Dubuque, IA: Kendall/Hunt Publishing Company (2460 Kerper Blvd., PO Box 539, 52004-0539).

Each of these publications is based upon Project Adventure philosophy which in essence states that individuals are usually more capable mentally, emotionally, and physically than they perceive themselves to be, and if given the opportunity to *try* in a supportive atmosphere, can discover this excellence within themselves.

Although none of these publications specifically addresses participants with disabilities, the basic philosophy and nature of many/most activities are such that individuals with disabilities can be successfully included. Content of each publication includes games, stunts, initiatives, ropes courses, and/or adventure curriculum. Activities are designed for and appealing to individuals, pairs, and groups of all sizes (small to gigantic). Creative, different, and active participation by everyone are basic to these activities, especially games and initiatives.

These three resources should be in the library of every physical education and recreation program—indoor or outdoor—including professional preparation programs in adapted physical education and therapeutic recreation, and serve as bases for inservice activities at all levels.

Tillman, K. & Toner, P.R. (1984).

You'll Never Guess What We Did in Gym Today! More New Physical Education Games & Activities.

West Nyack, NY: Parker Publishing Company (West Nyack, NY, 10960; ISBN 0-13-973215-2; paperback, 228 pg).

This wealth of information and valuable resource of over 325 physical education games and activities can help add zest to instruction in physical education classes, especially those for students in grades K-8. Although not specifically addressing activities with or for students with disabilities, many activities are applicable to and adaptable for either integrated or separate physical education classes involving students with disabilities. Information on each activity includes object, equipment, description, and variations, many enabling students with disabilities to participate with no further accommodations.

Chapters deal with indoor and outdoor games and game modifications—team and individual—that can be plugged into existing physical education programs to build coordination and promote cooperation and team efforts, dance as an extension to basic movement activities, activities for teaching in the classroom and to correlate with and reinforce instruciton in other subjects, change of pace activities to pep up physical education programs and capture imaginations of students, activites for rainy days and holidays, and tested motivational ideas to enhance the total physical education program. This is a valuable resource for anyone responsible for physical education instruction involving students with disabilities, especially teachers and leaders who are creative, imaginative, and resourceful.

U.S. Department of Transportation (DOT). (1991).

New Horizons for the Air Traveler with a Disability.

Washington, DC: DOT (Office of Consumer Affairs, 400 Seventh Street, SW, 20590; paperback, 33 pg; free, Consumer Information Center 2B, PO Box 100, Pueblo, CO 81002).

This booklet informs individuals with disabilities who travel by air of the latest steps taken to make their trips as efficient and enjoyable as possible, and what to expect in the future. Described are the latest changes made in response to passage of the Air Carrier Access Act of 1986, and forthcoming changes under the Americans with Disabilities Act (ADA) of 1990. Sections of the booklet deal with **planning the trip** (the new traveling environment, advance information, when advance notice and/or attendants can be required); **at the airport** (accessibility and moving through the airport, passenger information, security screening, medical certificates, communicable diseases); **getting on and off the plane** (safety briefing, mobility aids and assistive devices, boarding and deplaning); **on the plane** (accessibility, personnel training, seat assignments, service animals, in-cabin service—charges for accommodations are prohibited); **compliance procedures** (airport compliance resolution officials, safety-based decisions, written statements, DOT enforcement actions); and **identification of currently unresolved accessibility issues** (accessible terminal transportation systems, boarding chair standards, lifts for individuals unable to board small aircraft, accessible lavatories on narrow body aircraft, open captioning for in-flight movies and videos, TT service on aircraft). A barrier free environment for all who desire to travel by air is the ultimate goal of cooperative efforts between the air travel industry and organizations representing individuals with disabilities.

Wheeler, K. & Spiker, O.H. (1991).

Physical Education Curriculum Activities Kit for Grades K-6.

West Nyack, NY: Parker Publishing Company (West Nyack, NY 10960; ISBN 0-13-6470033-5; paperback, 237 pg).

Although this excellent resource does not specifically address accommodations for children with disabilities, contents are such that the publication can be extremely valuable for teachers and leaders who teach and work with special populations in either integrated or segregated settings in physical education or recreation. More than 500 fitness, rhythm and dance, and sport activities are designed to develop K-6 children's physical health and motor skills, promote positive self-image, and foster cooperation with others. For quick access, these easy-to-teach and tested games, routines, and drills are conveniently organized into 23 activity areas. Each section provides teaching hints, suggested grade levels for activities, recommended progressions and sequences of activities, and lead-up games and drills for further reinforcement. Individuals who are re-

sponsible for children with disabilities in the K-6 age range can use many of these activities as they are presented; make appropriate accommodations so their children can participate right along with their able-bodied peers; and have their own creativity and resourcefulness stimulated so other accommodations and modifications can be made to insure full and active participation by their students. This is a highly recommended resource, especially for teachers and leaders working with the K-6 grade span (5 to 12 years of age).

BITS & PIECES

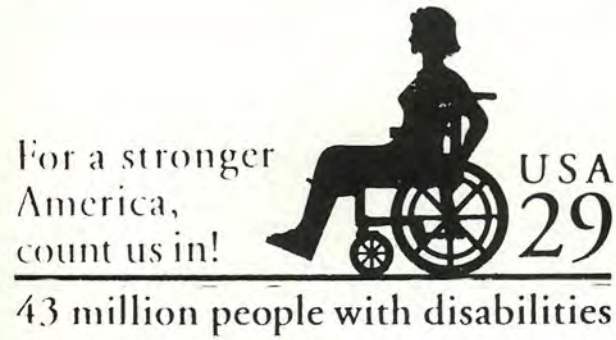
ADA Deadlines Effective July 1992!

The Americans with Disabilities Act (ADA) has been hailed as the most sweeping civil rights reform since the civil rights act of 1964. ADA was signed into law in July of 1990, the final regulations for implementation were published in July of 1991, and on January 26, 1992 some of the first *deadlines* for initial compliance took effect.

Although full compliance with the law extends over the next 20 years (all Amtrak stations must be accessible by the year 2010), most of the regulations become effective between January 26, 1992 and 1995. On July 26, 1992, the first **Employment** compliance deadlines took effect.

For more information about ADA regulations call the following toll-free assistance lines: **General Questions**—1-800-466-4ADA (v/TDD); **Employment Questions (EEOC)**—1-800-669-EEOC (v), 1-800-800-3302 (tdd); **Job Accommodation Questions (JAN)**—1-800-526-7234 (v/tdd); **Architectural Barriers and Transportation Questions**—1-800-USA-ABLE (v/tdd).

To obtain one *free* copy of the ADA text in alternate formats (Braille, large print, cassette, flexible record) contact: American Printing House for the Blind, P O Box 6085, Louisville, KY 40206, (502) 895-2405.



Americans With Disabilities Envelope

Forty-three million disabled American men, women, and children were recognized by the Postal Service on July 22 with the issuance of a new 29-cent stamped envelope in Washington, DC.

Veteran stamp designer Richard D. Sheaff of Needham Heights, Massachusetts, created the indicium design for the envelope. A silhouette of a woman in a wheelchair and the words *43 million people with disabilities* and *For a stronger America, count us in!* are emblazoned in the upper right-hand corner of the envelope. This envelope meets all Environmental Protection Agency recyclability standards for paper, inks, and adhesives.

Browne and Wall Win Golf Championships

Pat Browne of New Orleans closed out the championship round with a total of 141 strokes for 27 holes of golf during the U.S. Blind Golf Tournament at Lake Buena Vista Golf Course. David Meador (161) and Joe Lazaro (173) finished behind Pat Browne. Meanwhile, August 7th saw Canadian, David Wall complete a score of 222 for 36 holes to win the Canadian Blind Golfers Tournament in Saskatoon, Saskatchewan.

Ninth Paralympic Games

Over 4000 athletes and staff representing 86 nations, competed within disability groups in 15 sports over September 3-14, 1992, in Barcelona, Spain, during the IV Paralympic Games. One might say the Paralympics had come of age. . .an estimated 1.34 million people filled the stands to capacity for most venues throughout the games. Often there was standing room only; in fact, more people watched track and field competitions than the attendance reached during the Olympic Games, just weeks earlier.

As he did during the earlier opening ceremonies of the Olympic Games in July, Antonio Rebollo, 36, ignited the Olympic flame with sure aim as he again shot his flaming arrow to light the torch for the Paralympic Games.

The U.S. Paralympic team, 373 athletes, won 176 medals, 76 of which were gold. While medals are the result of individual achievement and should not be utilized as a comparison between nations, it is, perhaps, fitting to note that the U.S. Paralympic Team garnered more than double the gold medals earned by the U.S. Olympic Team in July (Watch for Paralympic coverage in the Winter Issue of ***Palaestra***).

*The **Bits & Pieces** section is a regular department of **Palaestra**. Information relating to physical education, recreation, and sport for the disabled individual is requested, however, any piece of information relating to issues dealing with the disabled will be considered. Please include, where possible, good clear black and white photographs to illustrate material, complete with cut line and photo credits when applicable. Send information to **Charles Daniel**, Department of Physical Education and Recreation, Western Kentucky University, Bowling Green, KY 42401. (502) 745-3347.*

A dramatic moment during the 400 meter wheelchair race at the Paralympics in Barcelona, Spain, as U.S. athletes sweep down the final stretch toward the finish line.

Pharmacologic Stress Tests Aid Diagnosis

Patients with disabilities with possible heart disease have long presented a problem to physicians because of their inability to undergo traditional treadmill or bicycle exercise tests. A new approach, pharmacolgical stress testing, is solving the problem.

"Clinically significant, treatable heart disease can now be detected in patients who previously could not be tested because of their physical disabilities," says Dr. David W. Winsor, director of nuclear medicine at St. Vincent Medical Center, Los Angeles. Common, limiting disabilities include severe arthritis, physical deconditioning, marked pulmonary disease, and paraplegia.

To simulate the stress of exercise, Dr. Winsor and his associates are using chemical agents. One of the agents is adenosine, a naturally occurring compound found in heart muscle, which is intravenously infused while the patient lies in bed. The adenosine produces dilation of the coronary vessels. Like traditional exercise testing, the radioisotope thallium 201 is injected at maximum stress to aid in identifying areas of decreased or inadequate blood flow during radionuclide scanning of the heart. "A distinct advantage in using adenosine is its short 10-second half-life," Dr. Winsor points out. "This allows rapid reversal of any adverse effects of the agent that a patient might experience and that could be cause for clinical concern."

Javits-Wagner-O'Day Program

The Javits-Wagner-O'Day Program (JWOD) began with the passage of the Wagner-O'Day Act of 1938 (PL 92-28). This law directed government agencies to purchase, under specified conditions, products from *Work Centers* employing persons who were blind. In 1971, Senator Jacob Javits (NY) amended the law to include people with severe disabilities (by federal definition—mental retardation, mental illness, cerebral palsy, any combination of multiple conditions which could prevent finding employment in a competitive environment).

There are 43 million Americans with disabilities and two-thirds of those of working age are unable to find work. The cost to the nation is enormous; an estimated 200 billion dollars a year in public assistance, another 100 billion dollars in lost wages and taxes annually.

Today, some 18,000 people with severe disabilties are working around the country in JWOD programs, helping to supply over 2000 different products to the government and a wide variety of services ranging from grounds maintenance, commissary shelf stocking to food service, recycling, data entry, and more. October was designated **National Disability Employment Awareness Month**. Perhaps you saw one of the Public Service announcements highlighting John Swancatt, Deborah Varner, or others. . .each answering the question, ***Who serves those who serve their country?***

Who Serves Those Who Serve Their Country?

. . .People like John Swancutt from ORC Industries in LaCrosse, Wisconsin.

John's job is to put the grommets onto each and every wet weather poncho that the DOD buys.

It's a job John doesn't take lightly. We don't think you should either.

Producing the best poncho that money can buy isn't just a job. . . it's a commitment to each and every person who'll wear it.

A public service message on behalf of the 18,000 people with severe disabilities working nationwide in the Javits-Wagner-O'Day Program.

Texas Blackhawks Win 1992 Beep Baseball World Series

The National Beep Baseball Association World Series was held in St. Louis Park, MN. Sixteen teams participated within the championship (double elimination) and consolation (single elimination) tournaments.

The Texas Blackhawks of Austin, TX, won the championships, going undefeated and winning over second place finisher, the Chicago Cobras, 20-19. The Braille Sports Foundation garnered third place. Kansas' Wichita Sonics defeated the Oklahoma City Bombers in two straight to win the consolation finals, while Fort Lauderdale was voted as the team with the best sportsmanship throughout the series.

MOSS Tennis Tournament A Rousing Success

Twenty-six outstanding athletes from New Jersey, Pennsylvania, Virginia, Maryland, Ohio and Connecticut recently gathered near Philadelphia for the first MossRehab/U.S. Healthcare Wheelchair Tennis Tournament. The tournament—co-sponsored by Moss Rehabilitation Hospital, the region's largest resource for the treatment of people with chronic, temporary, and traumatic disabilities—featured two days of singles and doubles competitions. The event culminated in the Breakfast of Champions, an awards ceremony attended by the athletes and local sports celebrities. Shown at the Tournament are athletes Steve Fetrow (front, left) and Robbie Thomas, with Sy Schlossman, Moss president and CEO (back, left), and Stephen Braverman, vice president, Institutional Advancement.

MDA-Backed Scientists Awarded Nobel Prize in Medicine

Drs. Edwin G. Krebs and Edmond H. Fischer, both professors emeritus of biochemistry at the University of Washington in Seattle, have been recipients of MDA research grants totalling 1.3 million. The two scientists were selected for the prestigious Nobel Prize because of their contributions to the discovery of the mechanisms controlling the functioning of all cells, including muscle cells. The Nobel Prize Committee said Fischer's and Kreb's research has helped to open new avenues to the development of drugs to fight cancer and other diseases. . .the numerous findings by Drs. Fischer and Krebs about cellular proteins have laid the groundwork for understanding what goes wrong in muscle cells for more than a million Americans affected by 40 neuromuscular diseases.

PVA Awarded Distinguished Service Award

The Paralyzed Veterans of America (PVA) received the Distinguished Service Award of the President of the United States at a ceremony in Washington, DC, in November. The national award was presented to PVA by Justin Dart, chairman of the President's Committee on Employment of People with Disabilities (PCEPD).

The award was being presented to PVA for "historic contributions over a period of years to the rights, quality of life, productivity and empowerment of people with disabilities," Dart stated. "PVA's leadership, not only for the rights of veterans, but for the equality of all Americans with disabilities, make it an ideal recipient of this honor," he added.

In accepting the award, Richard F. Johnson, President of PVA, noted the award criteria state it is granted very sparingly in recognition of extraordinary meritorious service that has substantially advanced nationwide opportunities for empowerment and employment of people with disabilities. "I proudly accept this award on behalf of the 14,500 PVA members and employees, each of whom has made a personal commitment to work toward true and total equality for all Americans."

Water Walking

In 1986, John Spannuth, then Senior Aquatics Director at the Cleveland County Family YMCA in Norman, OK, saw Dee Mascoe walking in chest deep water. Mr. Mascoe explained he had arthritis and could not walk out of the water for exercise, but walking in the water caused no pain. He explained how the resistance created by movement within the water to every move he made was helpful.

Spannuth began thinking about the benefits of walking in the water and suggested his water fitness instructors use water walking in their classes. Class participants enjoyed it so much

they requested a lane be roped off so as to allow water walking any time of the day. Before long, water walking was reserving 1.5 lanes and by the end of 1988, more than 2000 different persons were water walking at the YMCA in Oklahoma. For more information, contact: USWFA, PO Box 3279, Boynton Beach, FL 33424.

Local Nynex Employee Wins Prestigious National Award From Industry-Labor Council on Employment and Disability

New York Telephone switching equipment technician, John Gentile, of Danbury, has been named Outstanding Labor Union Representative of 1992 by the National Center for Disability Services' Industry-Labor Council. This honor recognizes Gentile's work in the area of safety and disabilities issues. As safety coordinator and area chief steward for Communications Workers of America (CWA) Local 1103, based in Greenwich, CT, Gentile implements safety education programs, initiates work place changes to meet the needs of employees with disabilities, and acts as labor liaison to a NYNEX organization dedicated to the recognition and advancement of employees with disabilities. In his role, Gentile is a member of the newly-established Americans with Disabilities Act Committee for CWA District I.

Gentile's commitment goes beyond his work at NYNEX. He also serves on the Mayor's Commission for Disabled Persons in Danbury, works with the President's Committee on the Employment of People With Disabilities, and is working with the U.S. State Department and an organization in Russia to form a delegation exchange program for people with disabilities.

Standards = Certification = Recognition and Parity

by Joseph H. Huber

APE NATIONAL CERTIFICATION

When the Individuals with Disabilities Act (IDEA) passed nearly 18 years ago, the U.S. Congress not only included physical education within the definition of special education but also stressed that physical education services be provided by *qualified* professionals. The *qualified* professional was first defined by the ***Federal Register*** (August 23, 1977) to be "a person who has met State educational agency approved or recognized certification, licensing, registration, or other comparable requirements." It was assumed that shortly after the IDEA passed, states would make a concerted effort to develop professional standards for preparing teachers of adapted physical education.

However, at last year's National Association of State Directors of Special Education (NASDSE) Action Seminar on Physical Education and Sports for Students with Disabilities, it was concluded that not all states have defined who is qualified to provide physical education to students with disabilities (***The Liaison Bulletin,*** August, 1991). Furthermore, in most colleges and universities, students are required to take only one introductory course in adapted physical education as part of the general physical education curriculum. Teacher educators often comment that one course is totally inadequate to address the psychomotor needs of all categories and levels of disabled students from ages 3 to 21.

To date, only 13 states offer an official designation for the adapted physical education specialist (e.g., certification, endorsement); moreover, requirements can vary dramatically from state to state. Some colleges and universities prescribe just one course in adapted physical education for the specialist, whereas others require students to take as many as 12 to 18 hours of course work in the field. Further, state educational agencies across the country often endorse as many as seven special certification categories to effectively address the educational classroom needs of all disabled students.

To further complicate the situation, it is not uncommon during these recessionary times to hear of professionals with no formal preparation conducting classes in adapted physical education. For example, in some states elementary classroom teachers and/or occupational and physical therapists are assigned to address the physical fitness and motor skill needs of children with marked developmental delays.

When such inconsistent professional standards and practices exist, fundamental differences in quality between classroom instruction and instruction in physical education will remain. Parity between special education and adapted physical education services will not be achieved in the 1900s until both professional standards and national and state certification of teachers of adapted physical education are achieved. Dr. John Dunn of Oregon State University states that: "Professionals need recognition through certification. This enhances their perception of self and the value of their service, allows for *equal* footing with their professionals, assures *equivalency* in training and discourages the *self-anointed* status (***The Liaison Bulletin,*** August 1991)."

One of the outcomes of NASDSE's Action Seminar was to challenge the National Consortium on Physical Education and Recreation for Individuals with Disabilities (NCPERID) to define the competencies of qualified adapted physical educators. At NCPERID's 1991 annual meeting, Dr. Luke Kelly presented a plan that would not only establish professional standards for teachers of adapted physical education, but would also include a mechanism for creating a national certification examination.

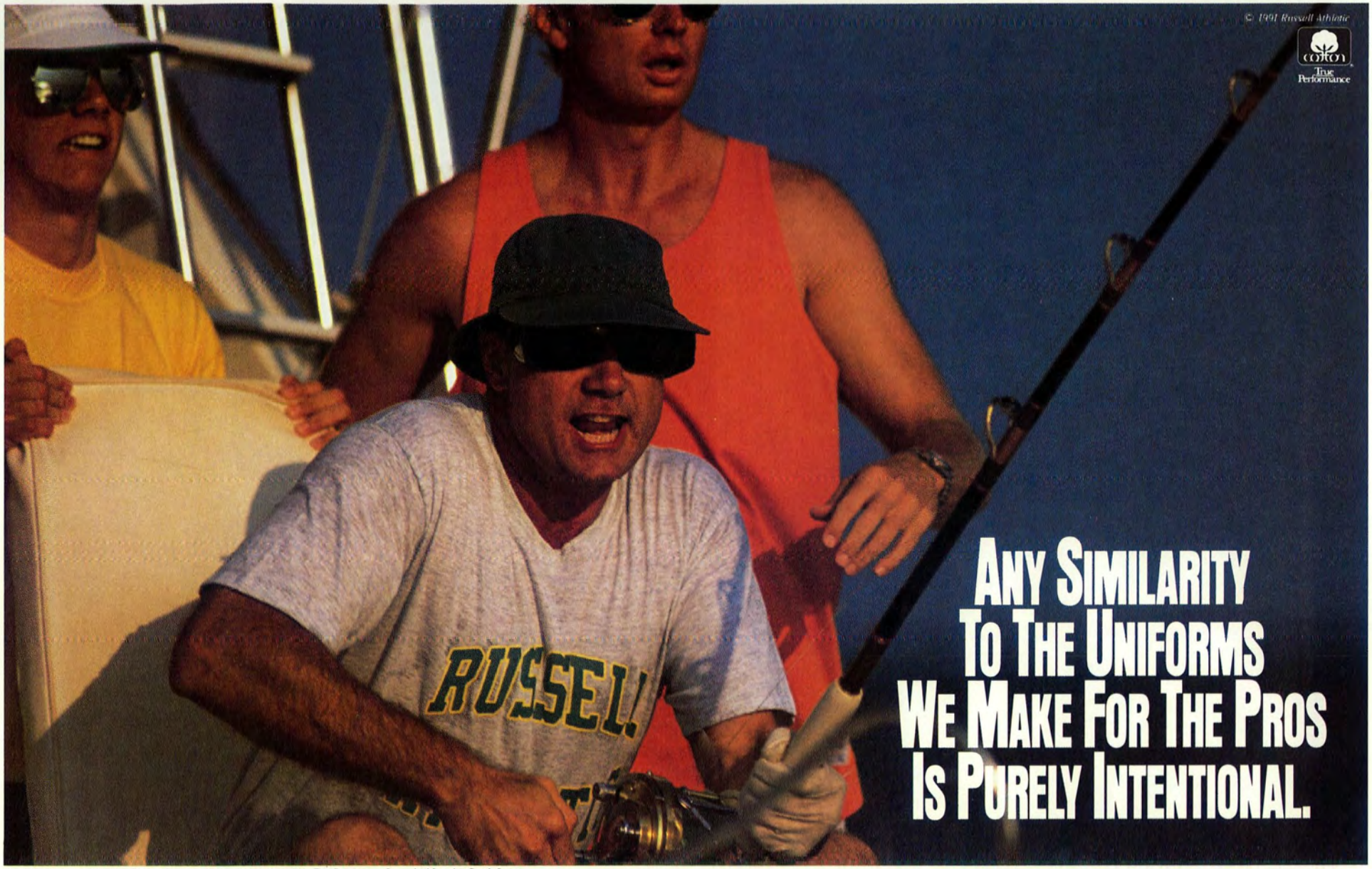
NCPERID's endorsement of Kelly's plan has led to the U.S. Office of Education funding a Special Projects grant entitled ***National Standards for Adapted Physical Education.***

It is anticipated that the development of professional standards and a national certification examination will take four years. The process will most certainly be a challenging one. Many professional and personal concerns will be debated throughout the process. Some of the key topics of discussion will likely include:

- immediate certification for experienced teachers (grandfather clause);
- eligibility (sitting) requirements;
- the need for two levels of certification (entry and advanced levels);
- appeals and disciplinary action boards;
- recertification and continuing education requirements.

Final Word

It is hoped that adapted physical educators across the country will respond enthusiastically to Dr. Kelly's plan for developing national professional standards. Is it possible that, by the turn of the century, students majoring in physical education will study the history that led to development of professional standards and national certification in adapted physical education? Moreover, will adapted physical education have obtained recognition as a national educational priority and parity with special education as a valued profession in all 50 states?



Look For Russell Athletic Tees, Tanks, Shorts, And Other Athletic Apparel in Fine Department Stores And Sporting Goods Stores.

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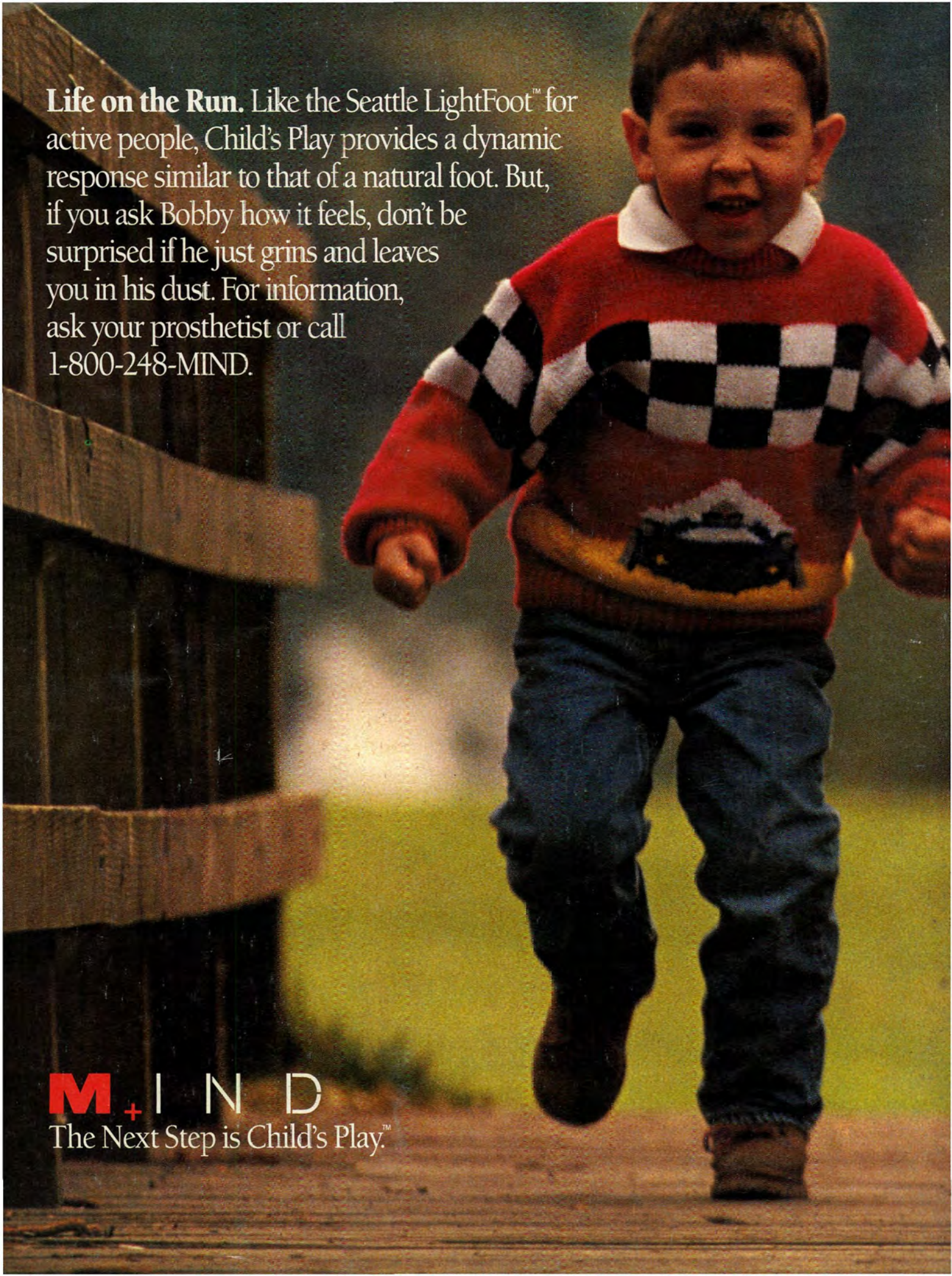
Life on the Run. Like the Seattle LightFoot™ for active people, Child's Play provides a dynamic response similar to that of a natural foot. But, if you ask Bobby how it feels, don't be surprised if he just grins and leaves you in his dust. For information, ask your prosthetist or call 1-800-248-MIND.
M+IND
The Next Step is Child's Play.™