



Capabilities

Communicating the Science of Prosthetics and Orthotics

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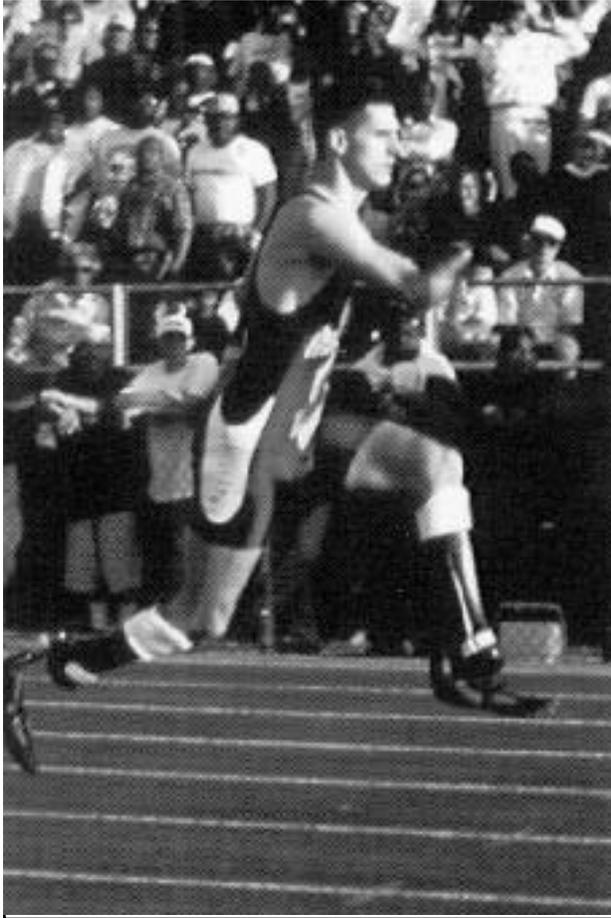


Photo Courtesy of Flex-Foot, Inc.

1996 Paralympics: Changing the Image of People with Disabilities ...

...the public
...the athletes
...their families

By Jan Little

The photo at the left shows Tony Volpentest as he set a new world record for the 100 meter Men's Run. Tony's record is only 1.5 seconds slower than that of Carl Lewis, holder of the Olympic and World Record for the 100 meter. Tony was born without hands or feet.

In 1960, about 20 athletes with disabilities arrived at New York a bit green of complexion from having flown through Hurricane Donna on the route home from competing in the first Paralympics in Rome, Italy. No one but their wives and girl friends paid much attention. In those 1960 Paralympics, approximately 400 athletes from 23 countries competed in about a dozen sports. The 1996 Paralympics in Atlanta, Georgia in August showed remarkable growth. Over 35,000 people cheered as more than 3,500 athletes with disabilities from 115 countries -- ranging from Afghanistan to Zimbabwe -- competed in 19 categories of events -- ranging from archery to yachting. In this Paralympics, the United States was represented by 310 male and female athletes, trained and accompanied by 70 coaches. At this Paralympics, televi-

sion and print journalists produced reports carried world wide. For the first time, a major U.S. network, CBS, broadcast coverage in the relatively prime time of mid-days of Saturdays and Sundays.

As one of the first women to represent the United States in Paralympics competition, I found the progress made in these Games to be remarkable. In addition to the number of nations participating, the level of competition has advanced light years since our Paralympic Team of 66 men, women, coaches and one team doctor took off for Tokyo in 1964. If we won one regional meet and hitchhiked our way to New York and won there, we were en-

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Some Comparisons of Paralympic and Olympic Records...

EVENT	PARALYMPIC	OLYMPIC
Men's 100 Meter Run	Ajibola Adoye, Nigeria (Arm Amputee) 10.72 Tony Volpentest, USA (Double Arm-Double Leg) 11.36	Donovan Bailey, Canada 9.84
Men's 800 Meter Run	Scot Hollenbeck, USA (Wheelchair) 1:40.63	Sebastian Coe, Great Britain 1:41.71
Women's 1,500 Meter Run	Connie Hansen, Denmark (Wheelchair) 3:45.23	Paula Ivan, Italy 3:53.96
Men's 1,500 Meter Run	Javier Conde, Spain (Arm Amputee) 3:54.61	Said Aouita, Morocco 3.29.39
Women's Marathon	Connie Hansen, Denmark (Wheelchair) 1:42.48	Joan Benoit, USA 2:24.52
Men's Marathon	Heinz Frei, Switzerland (Wheelchair) 1:30.15	Carlos Lopes, Portugal 2:09.21
Men's High Jump	Arnold Bolt, Canada (Single Leg Amputee) 1.96 meters	Guennadi Avdeenko, USSR 2.38 meters
Men's Long Jump	U. Kolly, Switzerland (Single Leg Amputee) 5.80 meters	Robert Beamon, USA 8.90 meters

Paralympics: Changing the Image Cont'd.

titled to wear the Red, White and Blue. Paralympic athletes now cross train under the direction of specialists in sports for people with disabilities. These athletes must win in qualifying meets that begin a year or two prior to the Paralympics. Today's Paralympians specialize in one or two events in one sport. On the 1964 team, some of our men swam, ran track races, participated in all field events and anchored the basketball team. We all did a bit of everything. The guys who could walk a little carried equipment and fixed the wheelchairs. I could type, so I fed the Associated Press wire service and covered for the *Chicago Tribune*.

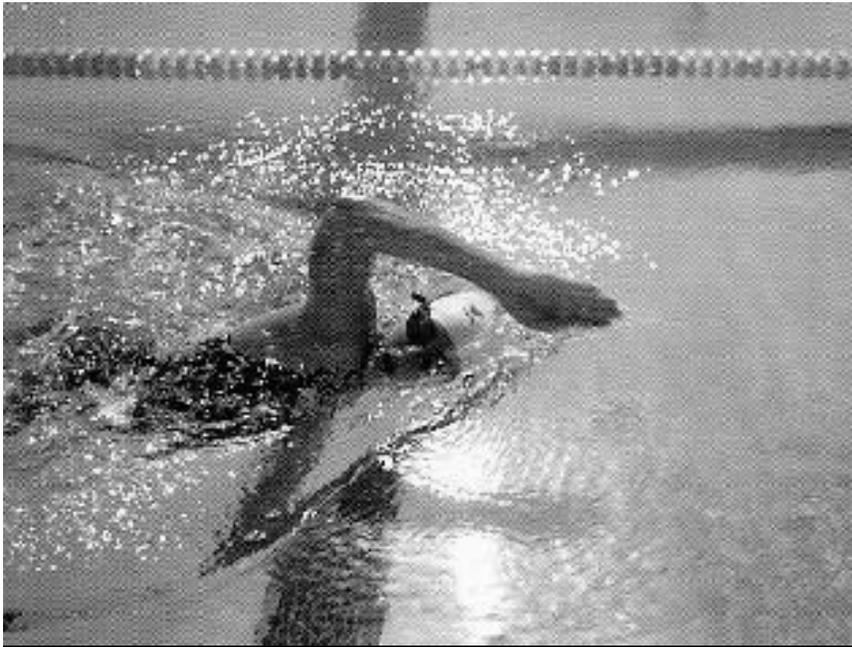
Attitudes toward people with disabilities have changed just as drastically as the nature of the Paralympics in the past 30 years. In 1964, people with disabilities only appeared on television or in print as examples of why people should donate to charities. In 1996, people with disabilities are professional actors and work in ads for major airlines, telephone companies and discount stores. Although we still hear of wide-spread unemployment among people with disabilities, common knowledge is that jobs are available for those people with disabilities who have appropriate professional or technical education.

The Paralympics have even advanced in areas that some wish weren't a part of Olympic-level sports. Athletes' performances are sometimes blatantly attributed to the products they endorse and one busy area at the Games was the medical area where athletes are tested to prove they have not used drugs or questionable practices to improve their performance.

Media Coverage Projected Image of Action

The 1996 Paralympics organizers made excellent use of the attention from the media. The Opening Ceremonies on Friday night, August 16, emphasized not only ability, but rugged action. Dana Bowman, who had both legs amputated as a result of a midair collision with a teammate on the U.S. Army Golden Knights Parachute Team, returned with his Golden Knight team mates to drop into Paralympic Stadium as a part of the opening ceremonies. People with disabilities -- as is true of all recognizable categories of people -- have areas upon which various members of the group disagree. One such area is whether money should be spent on research to eliminate disability (cure) or whether funds should be mainly used to change the world so people with disabilities can com-

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Making a Splash

*By Linda Lee Ratto, M.Ed.
Northwestern University PRL & RERP
Consumer Advisory Panel Member*

*Courtney Ratto is ranked
Number 13 in the World in the
100 meter Butterfly Stroke -- and
it's "On to Sidney"!*

It doesn't take much for me to be proud of my children. Now that they're all teenagers, a mannerly gesture or a kind word fills me with pride. But our family has been experiencing something that is generating larger-than-life pride: Our daughter Courtney has been trying out for the Paralympics.

**"Take Your Mark!"
Silence.... Focus... Set Position.... Blast!!!**

The starter horn sounds, and the Paralympic Swim Team Finalists were off. From amputation to blindness, cerebral palsy to spina bifida, the athletes' tough training and personal courage have paid handsomely. Forty three American and World Paralympic Swim Records were broken at the Indiana University Natatorium Paralympic Finals in May of 1996. My sixteen year old daughter was ranked 13th in the world for her Paralympic 100 meter Butterfly. My first born is taking her future by storm.

What are the Paralympics like? Are they truly the Olympics for the disabled? As a parent of a Paralympic hopeful for over three years now, I shout a resounding YES. Every swimmer I've met through the Paralympic trials around the U.S. has been an inspiration. And to have my daughter be part of this wonderful global village of dedicated athletes brings tears of joy to my eyes.

At the tender age of fourteen, Courtney, a below the elbow congenital amputee, decided to try a Paralympic swim competition at Ohio State. After swimming competitively in high school, Courtney was well-trained and felt ready. Her first interstate experience was still overwhelming: the size of the pool, the campus atmosphere - Courtney was only a freshman in high school. But the reigning Paralympians shared their time, kindness and personal encouragement which fueled Courtney's wings to continue Paralympic competition. Courtney has traveled to MIT/Boston, the University of Miami, back to Atlanta for the International Paralympic Swim Trials and finally to the Indiana University Natatorium for the Paralympic finals.

"Atlanta just wasn't my time"

She did not make the 1996 Paralympic Swim Team. A swimmer since her first "Mommy and Me" YMCA swim lessons at nine months, Courtney reacted simply, "Atlanta '96 just wasn't my time. Give me four more years and a college swim team to compete with and I'm going to Sydney!" Sydney, Australia welcomes the world for the next Olympics and Paralympics 2000.

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The Life of a Paralympic Volunteer Started Early -- Ended Late

By Laura Miller

The Opening Ceremonies set the tone for the celebration of the abilities, dedication and efforts of each Paralympic athlete.



From August the 15th to the 25th, many of the world's finest athletes came to Atlanta -- and I got to be a part of it. Everyone who knew I was from Atlanta wanted to know if I was going back for the Olympics. No, there was a more exciting event that I wanted to see -- the Paralympics. The time I spent in Atlanta lived up to and surpassed all the expectations that I had before going.

From the Opening Ceremonies onward, it was obvious that these athletes deserved respect for their achievements and not pity for a disability. The athletes were not there just to participate. They were there to win. The degree to which the athletes push themselves was illustrated by the fact that 200 World and Paralympic records were broken at these games. My only wish was that I could have been in more places at one time to see all of the events.

The Volunteer Committee decided I was "medical"

Because of my research in the Northwestern University Prosthetics Research Laboratory, I hoped to get a volunteer position where I could have hands-on experience with the technology in prosthetics and wheelchairs. Because I am not a certified, the Volunteer Committee debated about what to do with me, then placed me in medical services at the track venue in Olympic Stadium. I can honestly say I was the only Ph.D. candidate in biomedical engineering in the medical group. I think I was the only volunteer there that wasn't a doctor or a nurse. By the end of the week, I was at home checking off the supply list and taking vital signs of those coming into the station.

Anyone in our lab can attest I'm not a morning person. Yet, everyday I got up at 5:30 (a.m.!) to head to the

Olympic Stadium. From there, the Medical Coordinator, Connie Whittington, would dispatch us to the various athlete and spectator care stations in the stadium. Athlete care was my favorite place to be because you could slip out onto the field when things were slow and watch the events. Even though the last, 20-hour, day was the longest and fullest -- a rush from the Marathon in the morning to the Closing Ceremonies -- it was hard to believe the Games were over.

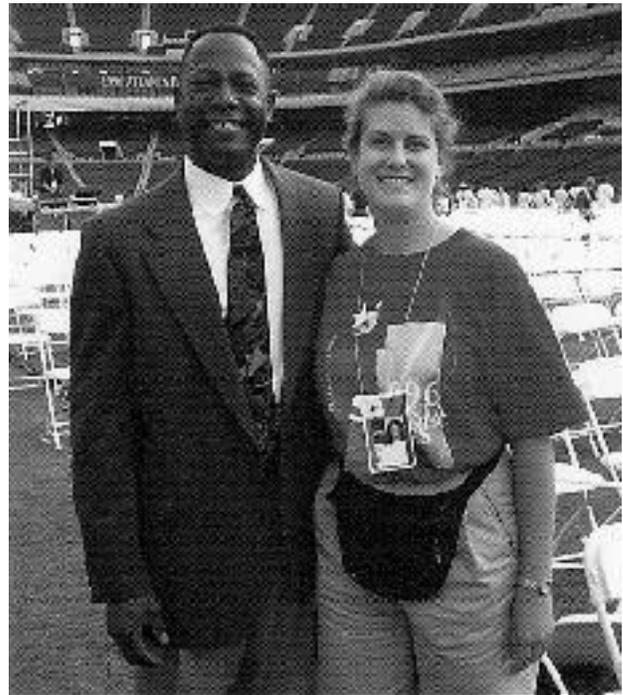
The best perk for being a volunteer was that I had free access to all events that were not sold out. On many afternoons after my shift ended, I went to see different sports. Wheelchair basketball is just as fast-paced as its standing counterpart. Most rules are the same as NCAA basketball and the court size and net height are the same as in the Olympics. The first game I saw was the U.S. Men versus the Netherlands. The U.S. came back from a seven point deficit at the half to win by 11 points in a powerful second period. Even though the U.S. later lost to Australia, a comment by a fan behind me at the game stands out: "This is the real Dream Team".

Wheelchair Rugby, a demonstration sport at these games, was another example of the competitive spirit of the athletes. Rugby is a popular sport and was one of the few events that sold out during the Paralympics. The object of the game is to carry the ball across the goal while avoiding the defensive players, who try to block the goal in any way imaginable. The best way to imagine this game is to picture bumper cars with wheelchairs. All participants in Rugby have quadriplegia.

The other two sports I went to see, Swimming and Goalball, were less violent, but certainly not any less competitive. As someone who can barely tread water, I can-

not truly appreciate the records set in swimming, but I do know that 100 meters in less than two minutes is fast. Goalball was a sport I had not even heard of until the Paralympics. It is played by visually impaired athletes who are blindfolded in order to block any remaining light perception. Players throw and block a soccer-size ball that has bells embedded within it. The spectators must be totally quiet so the players can hear the location of the ball. The arena was so quiet that I did not take pictures during the match for fear my camera would be loud enough to get me kicked out. During time-outs, though, the fans were sure to be heard. Some even brought make-shift drums of plastic trash cans and wooden spoons. The number of fans at many events was disappointing, but the fans who did attend were loud and enthusiastic.

What are the highlights I'll remember? The thousands of volunteers and the time they donated to the games. Working down on the field for a few days and watching the athletes as they crossed the finish line. Getting my picture taken with Al Mead. The most overwhelming moment of the entire Games was during the Closing Ceremonies at Olympic Stadium as I stood down on the field among the athletes, the coaches and the 50,000 fans as they celebrated "The Triumph of the Human Spirit". ❖



Laura Miller, a candidate for a Ph.D. in Biomedical Engineering at NUPRL&RERP meets Al Mead, record holder and Paralympic official.

Making a Splash!

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What a go getter.

Courtney was born on June 20, 1979. I cried until 1981 and then had two more children, Eric and Ryan. I wish the moon and stars for our children, but I had countless doubts. Who would give a girl with one hand a chance? Will my boys understand their sister? How could she swim with one hand? How could she keep afloat, never mind swim a race? If you had told me back in 1979, that our newborn would have athletic friends from around the world, that she would stand on a swim platform and dive into Olympic waters at dizzying speeds and be ranked 13th in the world, I would have shaken my head and cried.

But through the shadows of my unspoken worries, my baby daughter's talents blossomed. She approaches a challenge and listens to instruction on how to do it. Then she masters it, usually with her own unique twist. Consistently placing first, second and third place in swim meets against all able-bodied competition, Courtney has

also won bronze, silver and gold in Paralympic Swim Trials around the country. These Paralympic Trials have propelled her spirit to the heavens. Butterfly and Breaststroke with one hand? You bet.

As precious as life is, as sensitized as I have learned to become over these 17 years of rearing three children, I stand in awe. I am inspired by the blazing spirit that fills my daughter's heart. I watch as she makes her splash on this Earth, in wide-eyed amazement. My doubts have long passed.

You made your dreams come true

Thank you, Courtney, for making your dreams come true. Your achievements comfort us in a world full of doubt and worries.

The opportunities the Paralympics provide are worth looking into, well worth your time and effort. Our lives are so much richer, thanks to the Paralympic movement! ❖

University- Prof. Dr. med. René Baumgartner Honored at Festschrift at Northwestern University



In the photo on the left, Dr. Baumgartner (left) and Desmond Masterton, instructor at NUPOC, hold a discussion. In the photo on the right, Dudley Childress (left), Craig Heckathorne (center) listen as Dr. Baumgartner relates an idea.

Dr. René Baumgartner was honored at Northwestern University in Chicago with Festschrift, held July 2, 1996. Festschrift comes from the words Fest -- Festival -- plus Schrift (writing). Dr. Dudley Childress noted that a true Festschrift is a volume of learned articles or essays by colleagues and admirers, serving as a tribute, especially to a scholar. While there was not bound volume of articles, a full day of presentations mixed with discussions was held in tribute to Dr. Baumgartner, a reknowned scholar. The presentations were meant to become a virtual volume in Dr. Baumgartner's remembrance of the day.

Through his work as an orthopaedic surgeon, his tenure as Direktor der Klinik und Poliklinik für Technische Orthopädie und Rehabilitation, Westfälische Wilhelms-Universität in Münster, Germany, Dr. Baumgartner contributed much to the amputation procedures and prosthetics management worldwide. He authored many definitive books in orthopaedic surgery and prosthetics. Dr. Baumgartner organized the First World Congress of the International Society of Prosthetics and Orthotics (ISPO), held in Montreux, Switzerland in 1974.

A Virtual Volume of Prosthetic-Orthotic Research

The discussions during the day were based on presentations about research in many topic areas. Progress reports of research conducted at Northwestern University PRL & RERP in the areas of Upper Limb Prostheses, Aided Ambulation and Computer Aided Engineering were augmented by both Dr. Baumgartner's experience and presentations from others in those areas of interest. Christof Scharer, Otto Bock, Germany, John W. Michael, Otto Bock USA and Jack Uellendahl, Rehabilitation In-

stitute of Chicago, joined the Northwestern University Faculty and Staff in the presentations. Representing NUPRL&RERP were Richard Weir, Keith Oslakovic, Joshua Rolock, Steven Gard, Erick Knox, Richmond Chan and Craig Heckathorne. For those attending the Festschrift, however, Dr. Baumgartner's presentations were the highlight of the day.

Dr. Baumgartner reviewed the history of upper and lower limb prosthetics, providing knowledge of the base upon which progress has been achieved. His presentation of "Prosthetics in Art and History" entertained as well as informed. Dr. Childress closed the presentations with "Limb Prosthetic & Movement Science: What One Field Suggests About the Other". A reception and dinner honoring Dr. and Mrs. Baumgartner were held in the evening. ❖



Dr. and Mrs. Baumgartner (left) chat with Dr. Henry B. Betts, CEO of the Rehabilitation Institute of Chicago and Dudley S. Childress, Ph. D.

Technological Advances in Orthotic Designs and Materials

By Bryan S. Malas, C.O., C. Ped.

Director, Orthotic Education, Northwestern University Prosthetic-Orthotic Center (NUPOC)

Instructor, Clinical Orthopaedic Surgery, Northwestern University Medical School

In recent years, there has been an increase in the number of materials made available to the field of orthotics. Materials used for an orthosis are directly related to the orthotic goals instituted for a given patient. For example, if a patient has trouble clearing his or her limb during swing phase, a lighter material may be necessary. In other cases, patients may be at high risk of skin break down and may benefit more from a material that exhibits not only shock attenuation, but one that reduces the effects of shear force.

Material characteristics are extremely important and can be beneficial to the patient if used correctly. With the influx of so many new materials, it is necessary for the orthotist to stay current with newly developed materials. The greater the knowledge base for materials, the more likely the patient will be receiving proper care.

New materials have improved foot/ankle management

Nowhere has the development of materials been greater than in the area of foot and ankle management. Superior soft tissue supplement, increased longevity of the material, shock force reduction and shape retention are characteristics of many of the new materials available to the orthotist. Two examples of recently developed materials in this category are Gelform® and Silipos®. Suppliers of orthotics materials are continually introducing new products of this nature.

The characteristics of such materials allow us to achieve several goals when orthotically managing the needs of a specific patient. These characteristics are: (1) increased shock absorption during stance phase, (2) decreased shear force upon weight-bearing, and (3) maintenance of normal foot architecture. Implementing such goals allows for proper forefoot/hindfoot alignment and decrease the chance of ulceration.

Development of new materials and components is not only restricted to the foot, but is seen in other areas as well. With recent development of the Tamarack ankle joint, we see the inception of versatility. The joint, composed of polyurethane and a high temperature polymer, allows for increased tensile strength while retaining a high

degree of flexibility. The design of this ankle was directed by Marty Carlson, an orthotist with extensive experience over many years. The properties of the ankle joint which make it very easy to apply and align, demonstrate the importance of real-life experience in achieving practicality. This ankle joint addresses two needs of the patient with paralytic equinus of the foot. During swing phase, this component (1) increases ankle dorsiflexion assistance, and (2) provides longer component life due to increased rigidity of the mechanical ankle joint.

Knowledge of pathologies, biomechanical principles and fitting parameters are considered essential whenever the orthotist is managing patient needs. But the materials are equally important in that they are the framework for successful orthotic management. If we, as orthotists, have the knowledge base, but lack the proper materials, the orthosis of choice has the potential of failure. Materials that are incorrectly used or simply do not have the characteristics demanded for proper management may compromise our ability to optimally meet the patient's needs.

Knowledge of materials is critical to success

In order for orthotists to meet the goals they set, they must continue to increase their knowledge and awareness of materials presently available. The types and varieties of these materials grow constantly. Several professional organizations are taking the right steps to help orthotists acquire this knowledge. For example, the Professional Footwear Association Symposium, has chosen "New Technology and Materials" as this year's theme.

Because of the role that materials play in the success or failure of orthotics, people in our field are now recognizing the increased importance of materials. Ultimately, it is the patient who will benefit the most from this increased awareness. ❖

NUPOC does not endorse any specific materials and trade names used in this article are for illustration of examples only. Further questions about materials may be addressed for Mr. Malas in care of Capabilities.

Childress Named Recipient of Russe Award for Excellence

Dudley S. Childress, Ph.D., Director of NUPRL&RERP and Executive Director of the Northwestern University Prosthetic-Orthotic Center (NUPOC) has been awarded the Henry P. Russe, M.D. Citation for Exemplary Compassion in Healthcare for 1996. The Award is presented by The Institute of Medicine of Chicago and Rush-Presbyterian-St. Luke's Medical Center.

Dr. Childress was chosen for the honor because of his long years of dedication to biomedical engineering in areas that have improved the lives of many people with physical disabilities. In addition to establishing and directing one of the foremost rehabilitation engineering laboratories for prosthetics and orthotics in the world, Childress has made contributions in other areas of rehabilitation engineering. Under his direction, the first controls were developed to allow powered wheelchairs to be controlled using sipping and puffing on a tube, chin or other minimal movements to activate switches. He and his staff also developed one of the first environmental controls to enable a person with paralyzed hands and arms to activate lights, appliances in the home, tape recorders and other electrical devices.

Many organizations serving people with disabilities have benefited from Dr. Childress' involvement. As President, he was instrumental in launching the Rehabilitation Engineering Society of North America (RESNA) as an independent society to promote development of and access to assistive technology to enable people with disabilities to function at high levels of efficiency. He has also been active in the United Cerebral Palsy Associations, National Easter Seals Society and served as Chairman of the Division of International Activities of the Department of Health Education and Welfare. In addition to serving as an officer and on the Boards of Directors of such organizations, Dr. Childress has been an extremely effective advocate for commitment of funds for the support of people with disabilities and for the continuation of research to enhance the quality of life for people with disabilities.

The Russe Citation is presented in honor of the late Henry P. Russe, M.D., who served as Dean of Rush Medical College at Rush University of the Rush-Presbyterian-

St. Luke's Medical Center in Chicago. Dr. Russe also served five terms as President of The Institute of Medicine of Chicago. The award was created by the Trustees of Rush-Presbyterian-St. Luke's Medical Center and The Institute of Medicine of Chicago to honor people who exemplify Dr. Russe's conviction that humanitarianism must characterize the practice of medicine.

NUPOC Classes Open

On August 3, 1996, Northwestern University Prosthetic-Orthotic Center (NUPOC) began classes in the Certificate Program for 24 students in orthotics and 18 students in prosthetics. Classes will be completed on December 13, 1996.

Gard and Weir Join NUPRL&RERP Staff

Steven A. Gard, Ph.D. and Richard F. ff. Weir, Ph. D. have been appointed to the staff of the Northwestern University prosthetic-orthotic research programs. Both men were post-doctoral fellows with the programs.

Dr. Gard has concentrated on research in the area of lower limb prosthetics. His doctoral dissertation was the results of studying the influence of 4-bar knees on various aspects of gait. He is currently investigating the effects pelvic obliquity on vertical displacement of the trunk during walking.

Dr. Weir's research has focused on upper limb prostheses. His doctoral work reviewed both direct muscle attachment and exteriorized forearm tendons as controls for upper limb prostheses.

Collard is Security at DNC

Rosemary Collard, assistant to the Director of NUPRL&RERP, won one of the few, much coveted volunteer jobs at the Democratic National Convention in Chicago in August. Ms. Collard was assigned to the Security Force that protected the Clinton and Gore families. She was stationed at "the Chicago White House", which is also known as the Chicago Sheraton Hotel. ❖

Jan Little, NUPRL & RERP Staff Member was a Paralympian

By Dudley S. Childress, Ph.D.

This issue of *Capabilities* focuses on the Atlanta Paralympic Games of 1996. Jan Little, the editor of *Capabilities*, was one of the early participants in national and international sporting events for persons with disabilities. Her successes include three gold medals at the Tokyo Paralympics in 1964. She's a person worth knowing more about.

From the farm to the big city

Jan Little is a farm girl from Wisconsin. It seems altogether fitting that she should now work with a farm boy from Missouri (D. Childress) and be located in Chicago, that city with the motto, "*Urbs in Horto*" or "City in a Garden". Jan, the woman from Janesville, had polio when she was 13, and since then has been on the leading edge of the disability movement in the USA; not necessarily because she planned to be there but because that's where life put her. She was one of Tim Nugent's early brigade at the University of Illinois in Champaign-Urbana before most colleges and universities had heard about accessibility. As she was growing up, many people with severe disabilities were still being "warehoused". People in the health field at that time hardly knew what the word "rehabilitation" meant and most educators considered disabled persons ineducable or as classroom disruptions. Very little assistive equipment was then available to provide disabled people with voice, with control, with access, with wheels, or with wings. It was time before time.

When Jan was a teenager, the Rehabilitation Institute of Chicago (RIC) had just opened at an old printing warehouse in a "run-down" area near the Chicago River. Today, Jan resides in an office overlooking Lake Michigan on the 14th floor of the RIC. Things have changed in her lifetime -- some things for the better -- and she has changed, too. She is now Project Director for the Rehabilitation Information and Education Unit of Northwestern University's Rehabilitation Engineering Research Center. Her unit puts out this newsletter, among several other activities.

Jan, who has quadriplegia, self-propels a wheelchair. She received her early rehabilitation through the activities of daily living of a Wisconsin farm. She got her introduction to the process in a more formal way during the 1950s through the Student Rehab Center and other programs that Tim Nugent had begun a decade earlier at the University of Illinois to facilitate entry and education for persons with disabilities. At Illinois, she obtained a B.S. in Journalism and an M.S. in Communications. It was there she became involved with the athletic competition

that took her all over the world, and ultimately resulted in Paralympic gold in swimming. She was also a Paralympic archer.

Jan was fated to be a Chicagoan. Chicago is a strong, energetic city that is a major printing and publishing center, a focal point for communications and transportation, and a place known for journalistic competence. Chicago has allowed Jan to flourish while she remained in the heart of the heartland. Her journalistic career began in the Windy City during 1967. Within a few years, her writing, graphical arts skills, and management abilities were integrated with the field of durable medical equipment as an officer of Medical Equipment Distributors (MED), Inc. While CEO at MED, Jan became acquainted with the Rehabilitation Engineering Research Center at Northwestern University and a number of the products of the Northwestern Center (e.g. wheelchair controllers, environmental controls, reclining mechanisms, etc..) became commercially available to people with disabilities as a result of this acquaintance.

In on the early days of RESNA

Jan has been active in many organizations such as the National Paraplegia Foundation. She is a founding member of RESNA (originally the Rehabilitation Engineering Society of North America). She served on its Board of Directors and was its first treasurer. In 1981, she and Dudley Childress, working together and with others, organized the Fourth Annual Conference on Rehabilitation Engineering in Washington, DC. It was the first Conference that RESNA ran completely on its own. Fortunately, it was a programmatic and financial success that gave RESNA a boost while it was a small, nascent organization. Jan Little's later activities in rehabilitation technology have been as Director of Marketing for Invacare Corporation and as Director of Infinetec, a project of the United Cerebral Palsy Association of Greater Chicago. She is now a Professional Consultant on a number of projects in Chicago, including her important work with the Northwestern University Rehabilitation Engineering Research Center.

Jan Little's most recent major publication is an autobiography of her life, which more or less parallels the advancement of rights, opportunities, and assistive devices for persons with disabilities. *If It Weren't For The Honor -- I'd Rather Have Walked*, published by Brookline Books, is an amusing, hard-edged, irreverent, sometimes exaggerated, sometimes poignant, and always personal view of life. ❖

Books and Periodicals and Other Sources of Information

COPING With Being Physically Challenged and COPING With a Physically Challenged Brother or Sister

By Linda Lee Ratto

Linda Lee Ratto sails through uncharted waters with two companion hardcover books, offering a bird's-eye view into the world of the physically challenged. The reader is afforded the unique opportunity to listen as real-life children and young adults speak candidly about their differences. Their no-holds barred comments cover everything from daily stress to doctors and team-building to dating. Following the young peoples' stories are practical skills techniques on how to live well with disability.

Over 90 challenges are included within these companion books, part of a counseling series of a hundred titles published by the Rosen Publishing Group. From AIDS to scoliosis, cancer to wheelchairs, the mother of three writes from the heart of family experience. Two of her children have disabilities.

Written in clear, concise terms, these books are for family and friends of the challenged. People from all walks of life will benefit from the life-skills taught within these COPING pages. An excellent book to read and keep as a resource, or give a copy to your local library. Most libraries have a small supply of books on disabilities and fewer on the level most young people and adults can enjoy. COPING books are written on the average newspaper reading level, a pleasant change from scientific, data-oriented books. Packed with professionally accurate information, coupled with the youngster's stories, these COPING books also list numerous addresses and contact numbers for agencies and support-networks.

Available from The Rosen Publishing Group, 29 East 21st Street, New York, NY 10010, Phone 800/238-9932.

Prosthetic-Orthotic Resource Guide

This 48-page guide is intended to be a starting place for amputees, their families, allied health personnel and others who work with amputees to find a variety of information. The Guide lists support groups, State Assistive Technology Programs, sources for prosthetics, orthotics and materials and components. Another section lists a range of agencies and services for people with amputations and other types of disabilities.

The Guide is available free of charge from Northwestern University Prosthetics Research Laboratory and Rehabilitation Engineering Research Program, 345 E. Superior St., Chicago, IL 60611.

Strength of Materials in Orthotic & Prosthetic Design

By Thomas Lunsford, M.S.E., C.O.

This manual for the prosthetists and orthotist lists results of testing of a variety of materials used in the fabrication of prosthetics and orthotics. Included is information on strength and stress of steels, aluminum alloys, fastening components and plastics and composites. The price is \$39.95 for members of the American Academy of Orthotics and Prosthetics, \$49.94 for nonmembers.

Available from Kendall/Hunt Publishing, P. O. Box 1840, Dubuque, IA 52004-1840. Phone, 800/228-0810.

I-CAN (Information Child Amputee Network)

Bill Baughn and his wife, Joyce, a bilateral below elbow amputee since age six, have established an Internet site to bring together sources of information for parents of children born without limbs or who have experienced early amputation of a limb. The site includes information and help from people who either experiences early limb deficiency or professionals who work with children with limb deficiencies.

Articles of interest to parents may be downloaded from the site. Most articles are written by parents and cover a range of topics including experience with myoelectric limbs, processes of adapting to the birth of a child with limb deficiencies and tips for families.

To subscribe to this service, send an e-mail message to MAISER@hoffman.mgen.pitt.edu. The first line should read, SUBSCRIBE I-CAN.

How to Find Funding Guide

The Rehabilitation Engineering Research Center on Technology for Children with Orthopedic Disabilities at Rancho Los Amigos, funded by NIDRR, offers a pamphlet to help parents of children with disabilities. You may obtain a copy of, "*Tips on Breaking the Funding Barriers...How to get Assistive Technology for your Child*" by contacting Project Threshold, Rancho Los Amigos medical Center, 7601 E. Imperial Highway, 500 Hut, Downey, CA 90242. ❖

Paralympic Wrap-Up

Continued from page 2

pete on "an even playing field". The Paralympic organizers honored both sides of the argument by having Christopher Reeves, the actor who became paralyzed from the neck down in an equestrian accident, give the Opening Address. The climax of the Ceremonies came as Mark Wellman, a U. S. Park Ranger who is paralyzed from a spinal cord injury, climbed a rope up the scaffolding to light the Paralympic Torch. This viewer came away with the idea that research must, indeed, receive more funding. In the mean time, let life go on and let the Games Begin.

Amputees Steal the Show

When the competition began, the amputees took a large share of the spotlight. There was an excellent reason. Tony Voltenpest, born without hands or feet, went into the Men's 100 Meter Run with a record of 11.63 seconds -- only 1.82 seconds behind Donovan Bailey's Olympic record. With the cameras watching, Voltenpest shaved .30 seconds off his own record. U. Kolly, of Switzerland, set a World Record for amputees in the Men's Long Jump at 5.90 meters, 3.1 meters short of the Olympic Record.



Photo Courtesy of Flex-Foot, Inc.

Kurt Collier competed in discus and in the Pentathlon.

TV commentators reported that the above knee amputees were not happy to have to compete in the High Jump with below knee amputees, who can use their prostheses to run in an approach to the hurdle. Above knee amputees must hop on one leg. The medals in the event were won by above knee amputees -- who came within about 18" of the world record for non-amputees.

In this viewer's opinion, one of the most amazing performances of the Games was when Yeong Chiang Gou, People's Republic of China, astounded both his rival competitors and the fans as he shot through the water in the 100 meter Men's Breaststroke. He swims using his legs

and torso because he has bilateral shoulder disarticulation. His unique method of turning at the end of a lap by driving his head into the wall full force may never be adopted by other swimmers.

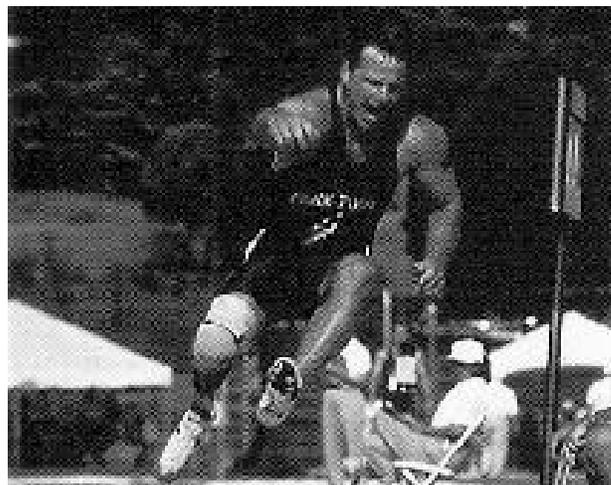


Photo Courtesy of Flex-Foot, Inc.

Thomas Bourgeois with a qualifying long jump.

In addition to amputees, the competitors at the Paralympics included people with cerebral palsy, mobility limitations which require them to use a wheelchair and people with visual impairments. Modifications to sports are kept minimal. Wheelchair tennis allows two bounces of the ball instead of one. Visually impaired racers run with a guide or ride bicycles with a guide. Discus, javelin and shot are thrown by wheelchair users without the spin or run traditionally used in these events.

It is a temptation not easy to overcome to compare Paralympic records with Olympic records. Sometimes, the results surprise those who tend to equate physical disability with incapability. For example, wheelchair racers easily beat the records of people running on foot. Wheelchair racer Scot Hollenbeck runs 800 meters in 1:40:63 while it took Olympic champion Sebastian Coe 1:41.71. Connie Hansen runs the Marathon in 1:42.48 while it take Olympic record holder Joan Benoit 2:24.52. It doesn't matter if there is a mechanical advantage for the wheelchair racers, the point is that it takes concentration and desire to force your body to go as fast as it can for an hour or two.

The athletes who competed in the Paralympics, just like those who participated in the Olympics, won many things. They won admiration, places in the record books, medals, money and a moment of recognition. Probably the biggest win was that feeling that we get when we know that we had the discipline and the drive to do something better than anyone else. The Paralympians won another thing. They took another step in destroying the pity, fear and underestimation of people with disabilities. ❖

Capabilities

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