

Volume 11, Number 1, Winter & Spring 2002



By Jan Little

Brian Ruhe, (left) defenseman for the Gold Medal-winning United States Sledge Hockey Team at the 2002 Paralympics, with Steven Gard, PhD, who works with Brian in the research he is conducting to earn his Master's and Doctorate in Biomedical Engineering at Northwestern. University.

It was the A&E cable television channel instead of the NBC network. It was 11 days after the flame for the 2002 Winter Olympics had been extinguished and Scott Hamilton and friends had skated away the closing ceremonies. But the competition, suspense, thrills and skills were the same. It was the 8th Winter Paralympics. And it was the first time Paralympic Games were televised on a regular basis in prime time.

It was also the first time many members of the public had the opportunity to see the highest level of competition among skilled athletes who have a disability in addition to their love of sports and determination to perfect athletic skills until they can challenge anyone else in the world. Just as in the Winter Olympics, TV hosts interviewed athletes between events. But the interviews focused on the effort an athlete must put forth to win and discussion of the person's disability was minimal and incidental to his or her achievements. The words "brave" or "courageous" were notably missing.

Approximately 1,000 athletes representing 35 nations came to Salt Lake City to compete in 100 medal events in Nordic skiing, alpine skiing and sled hockey. For seven nights, sports fans turned on A&E to thrill to people speeding down an intricate course on the side of a steep mountain at speeds exceeding 60 miles an hour...while balancing on a custom-molded seat mounted on a single ski. Fans cheered for skiers who raced tortuous cross-country courses. Some of the skiers couldn't see the courses. Some of them skied with only two or three limbs. Some ran the entire course propelling their skis with arm and shoulder power.

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To many viewers, the most exciting sport was sledge hockey — known as sled hockey in the U.S. Viewers soon forgot that the hockey players were sitting on a seat attached to a u-shaped metal frame with two skates mounted underneath and propelling themselves with two sticks as the play-



Photo Courteey of the US Sled Hockey Association The victorious USA Sled Hockey Team posed on the ice after winning the gold medal in the final game that ended with a tie at the end of official time. The USA won by most points in a face off.

ers raced up and down the rink, shooting, defending, stealing the puck and, on more than one occasion, knocking an opponent over, whacking him with a stick and earning a trip to the penalty box.

NUPRL & RERP student wins gold

The staff of Northwestern University Prosthetics Research Laboratory, Rehabilitation Engineering Research Center and NUPOC had a very special reason to watch and scream encouragement as the United States Sled Hockey Team overpowered all other teams to win the gold medal. Brian Ruhe, who began his association with NUPRL & RERP as a Dole Scholar in 1997, was the most active defenseman for the United States Team. Time and again, Ruhe stole the puck and passed to a US teammate who scored a goal.

Brian shared his personal road to the Paralympics with us before he left for the Games.

"My road to the 2002 Paralympic Games began two years ago when I was asked if I would be interested in participating in a new sport team being organized at the Rehabilitation Institute of Chicago (RIC) Wirtz Sports Program in the Helen M. Galvin Center for Health and Fitness." Brian said. "The sport was ice sled hockey. Having never skated, or played hockey before, I questioned the offer, but said I was willing to try anything. From the moment I got on the ice, I knew sled hockey was the sport for me."

The major difference between sled hockey and NHL hockey is in the skating. A player moves the sled on the ice using two sticks. Each stick is approximately 30 inches long. At one end on the stick is a blade used to pass and shoot the puck, while the other end of the stick has picks used to dig into the ice. Other than using only upper body strength for propulsion, the game has the same action and rules as regular hockey. It can be played on an NHL size ice rink, or an international size ice rink. The game is fast and checking or hitting is a big part of the game. It's as competitive as all hockey."

When he's not playing as a member of the United States Team, Brian is a defenseman for the RIC-Blackhawks, sponsored by the Rehabilitation Institute of Chicago (RIC) and the NHL Chicago Blackhawks.

"After winning the first three tournaments we entered," Brian continued, "our coach began to realize that something special was happening. He decided to train us for the Paralympic tryouts."

"Training was intense. I worked out in the gym three times a week to increase my strength and conditioning, plus practiced twice a week to improve my defensive game. One month before the selection camp,

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Capabilities (ISSN 1055-7156) is published in Spring, Summer, Autumn and Winter by Northwestern University's Rehabilitation Engineering Research Program. Program Director, Dudley S. Childress, Ph.D. Editor & Designer, Jan Little, MS.

Subscription is free to all individuals interested in prosthetics and orthotics. For contribution guidelines and advertising inquiries, write to the address below. Address subscription information, address changes and other correspondence to: *Capabilities,* Northwestern University RERP, 345 E. Superior St., Room 1441, Chicago, IL 60611.

This work was funded by the National Institute on Disability & Rehabilitation Research (NIDRR) of the Department of Education under grant number H133E980023. The opinions contained in this publication are those of the grantee and do not necessarily reflect those of the Department of Education.

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A Demonstration of Indominable Spirit

By Karla Powell

Prosthetic and orthotic devices keep this gal on the moo...ve. Here, Dudley Childress (left), Mark Edwards (top) and Bryan Malas (bottom) join artist and NUPOC patient demonstrator Terrence Karpowicz by his whimsical contribution to Chicago's renowned Cows on Parade exhibit, seen here in the RIC cafeteria.

A counselor I know who often treats those faced with sudden or overwhelming loss once told me: "The turning point in dealing with loss of any kind is when you no longer mourn what is gone, but instead focus on what remains." Although this healing attitude is practiced daily by the staff and students of NUPOC, it is perhaps most apparent in the Center's innovative classroom demonstrator program, which brings students together with people who rely on orthotics and prosthetics. This allows them to apply hands-on the theoretical aspects of their training.

"By virtue of its location in a major metropolitan area, NUPOC can draw on a large and diverse population," points out Dudley Childress. This allows NUPOC to recruit a significant number of demonstrators, he continues, which is an invaluable resource for it as a training school. It greatly benefits both student and demonstrator. Indeed, it is the quality of these ongoing relationships that has kept demonstrator Terrence Karpowicz involved since the early 1990s. We profile him here not only because of his commitment to the program, but also because his own story demonstrates the value of focusing on "what remains" after a devastating loss.

Now internationally recognized as a sculptor, Karpowicz's future began with great promise, when a Fulbright Hays Fellowship took him to England in 1975 to study as a millwright's apprentice. Seven months into the two-year fellowship, he lost his right leg above the knee in a motorcycle accident. As he lay recovering in a hospital bed, Karpowicz began to wonder anew about his aspirations. Yet inspiration overcame despair when he reflected on how another had prevailed in a similar tragedy. This man—famed industrial sculptor Mark di Suvero—was already an artistic role model for Karpowicz. Yet now he served as an example in previously unimagined ways. For like Karpowicz, di Suvero had only just begun to gain recognition in his field when a devastating elevator mishap crushed his own legs. Defying a prognosis of lifelong paraplegia, di Suvero not only learned to walk again, he also went on to execute the ever-larger sculptures that brought him world renown.

With di Suvero in mind, Karpowicz approached his own rehabilitation by taking it "minutes into days and days into weeks." Now age 53, Karpowicz has seen those weeks turn into years of achievement—both monumental and incremental. "When people ask me how I feel about being handicapped, I reply, 'It's like a horse that's handicapped for a race. The extra weight only makes it run faster."

At around 15 pounds the "extra weight" of his former exoskeleton prosthesis did not hold Karpowicz back from the challenges of his early years as a sculptor, which included installing massive pieces that sometimes weighed as much as 900 pounds per component. Still, his former prosthetic limb *was* heavy by today's standards. So when it came time for a new one, he consulted Yeongchi Wu, M.D., for a prescription, which led to Karpowicz's current, lightweight, endoskeleton prosthesis. "When I was younger, I was more concerned about its cosmetic appearance," says Karpowicz of his prosthesis, adding that ease of use is what matters now. Mark Edwards, NUPOC's Director of Prosthetics, concurs. "People often are making a statement based on the type of prosthesis they choose." For some, the sparer 'hightech' look is the statement they want to make, explains

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Edwards, whereas "others will ask us to make them a prosthesis that resembles their other limb as closely as possible."

It was through his initial consultation with Dr. Wu himself a sculptor as well as physician—that Karpowicz was introduced to NUPOC's classroom demonstrator program. As with his involvement as a demonstrator, Karpowicz continues to join forces with Dr. Wu to this day. Under the auspices of the Center for International Rehabilitation (CIR), Karpowicz assists with an exceptional outreach program for physicians and prosthetic technicians in developing coun-



Terrence Karpowicz (left) with a sculptural maquette representative of the work that has brought Karpowicz international recognition. Left to right are Bryan Malas, Mark. Edwards and Dudley Childress.

tries. Using videos and manuals, this project illustrates such techniques as the proper alignment of prostheses to avoid gait deviations. Along with their CIR colleagues, these and other concerns are a point of pride with NUPOC staff as well. Says Edwards, "Teaching practitioners to heed how the device interacts with the human body is an integral part of their training."

Taking a person past their disability

Just as the purpose of prosthetic joints and sockets is to be successfully propelled by the body's own mechanics, the field of orthotics also accommodates disability to enhance function. This specialty strives to "take the person *past* their disability so they can resume more of the normal activities of daily living," points out Bryan Malas, NUPOC's Director of Orthotics. For example, orthotics can "make a household ambulator into a community ambulator, or enable a person to use a cane or crutches." Yet, Malas continues, the end goal is not just to correct the problem, but also to ease the pain and fatigue that can come from the condition. So the purpose of any orthotic device is to stabilize what needs correction in a way that makes the person stronger, he explains.

Again, it comes down to relationships. Whether it is the forging of disparate materials into a cohesive structure, or the bonding relationships among people, what would otherwise be separate is often strengthened through these connections, believes Karpowicz. Indeed, since his introduction to NUPOC's demonstrator program, Karpowicz says he's seen dialogue with its students become stronger, which he thinks stimulates imagination as well. His own ability to relate to their training perhaps stems from the fact that, when sculpting, he too "marries materials"—not unlike the challenges of prosthetics/orthotics. If they must meld man-made substances into devices that lend comfort, mobility and solidity to human lives, Karpowicz similarly joins marble, granite, or steel with hard and soft woods to make powerful statements about mass, movement, balance and harmony.

CIR commissioned Terry to create Humanitarian Award

This talent won him a commission from CIR to create their award sculpture. Its bronze-plate cube "conveys a presence that will endure in time and place," says CIR spokeswoman Anne Henry. "A wedge has been cut into the sphere to perfectly receive the pirouetting cube and maintain its balance. This wedge is a metaphor for the time, energy and commitment given by the award recipient to assist people with disabilities." Within the reflective surface of the stainless steel sphere each recipient can "catch a glimpse of his or her own image," thus seeing themselves, and all of us, in the role of supporter, she further explains.

Karpowicz's interest in sculptures that are interactive was apparent early on. In fact, at his 1981 breakthrough exhibit, he stipulated that people be allowed to touch his large-scale "Motion Machines," dispelling the hands-off aura that surrounds much art. Today, Karpowicz chooses to suggest or contain motion, thus allowing others to inject their own flights of fancy. This is quite appropriate, given that flight is another recurring theme in his art. "I've always dreamt of taking flight," he says, "even more so since losing my leg." Although the heavy materials he sculpts "may belie the ability to get off the ground, just try telling that to Icarus," he insists, as if to prove that the spirit soars despite the weight of matter.

Whether it be potential or kinetic energy, the fusion of matter intrigues Karpowicz. On one level, it relates to the daily union he must assure between his limb and his prosthesis. "How pieces fit is somehow connected to my accident," he is quoted as saying in the 1998 issue of *Sculpture* magazine. The important juncture where a missing limb is

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joined to a prosthetic device parallels the dissimilarity of elements used in his sculptures, he further explains.

Karpowicz's conviction that both objects and people "become stronger through their relationships" stems from an epiphany he experienced during a 1991 visit to the former Soviet Republic of Georgia—in the midst of their civil war. Struck by how the artists persisted in their purpose despite the chaos, "I saw then that I was part of a lineage that extends as far back as the Venus of Willendorf created by cavemen (circa 15,000-10,000 BC)."

Such continuation of purpose is also part of the legacy for prosthetists, the first of whom were those European artisans who earlier had crafted battle armor, explains Dudley Childress. In our country prosthetics languished until the casualties of the Civil War created a great need. To meet this demand, apprenticed situations became the norm, without benefit of formal schooling.

By 1945, the advantages of continued research and education were recognized, when a meeting convened at Northwestern's Thorne Hall to further that end. Meanwhile, during World War II noted orthopedist Dr. Clinton L. Compere—who served in the South Pacific campaign—saw that more should be done for amputees. With his return stateside, he became a protégé of RIC founder Dr. Paul Magnuson—himself a Chicago physician whose interest in prosthetics came from witnessing the hazards of the stockyards. Once again, a *relationship* made all the difference, as these two men championed a standard of care that continues to flourish at NUPOC

Ted Turner Received CIR Humanitarian Award, designed by Terry Karpowicz, for 2002

R.E. (Ted) Turner, founder of the United Nations Foundation and the Better World Campaign, received the Humanitarian Award for 2002 from the Center for International Rehabilitation (CIR). Mr. Turner is Vice Chairman and Senior Advisor of America Online and has a long history of success in business. He formed the United Nations Foundation with a \$1 billion donation. The award sculpture was designed by Terry Karpowicz.

The CIR Fifth Annual Awards Dinner was held April 8, 2002 at the Hyatt Regency Chicago. CIR, directed by Dr. William K. Smith, is engaged in numerous cooperative projects with NUPRL & RERP and NUPOC.

Terry Karpowicz Continues to Contribute with Participation in NUPRL & RERP Gait Studies

By Stefania Fatone, PhD and Steven Gard, PhD

Terry recently completed participating in a pilot study investigating the effect of prosthetic socket type on transfemoral (above-knee) amputee gait. Terry was recruited to the study because as a volunteer demonstrator at NUPOC he has experience walking on the prosthetic sockets being investigated: the Quadrilateral and Ischial Containment sockets. Prosthetic sockets form the interface between the residual limb and the prosthesis and are important for the transmission of forces and distribution of pressure between the amputee and prosthesis.

Prosthetic socket design is important to the overall comfort, function and control a person with a lower limb amputation may have during sitting, standing and walking. The two most commonly used prosthetic sockets for transfemoral amputation are the Quadrilateral and Ischial Containment sockets. Of specific interest is the effect of socket type on pelvic and hip kinematics, walking speed, step length and width, and energy expenditure.

As part of this study Terry was cast and fitted with a 'test' prosthesis that had first one socket type attached and then the other. Terry had the 'test' prosthesis fitted and aligned on one day, then was asked to wear the prosthesis around the hospital for one hour before data was collected. This brief period of accommodation was followed by a gait analysis. Bilateral kinematic and kinetic data was collected and processed. The data from Terry and one other subject

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our coach had us practicing every weekend, sometimes 12 hours over the two-day period."

"The US National Team selection camp took place in Buffalo, New York during the first weekend of August 2001. A five-person selection committee examined each player's skills over five practice sessions. Although thirty-four players tried out for the team, only 15 were selected: two from Boston, three from Dallas, one from Pittsburgh, one from



Photo Courteey of the US Sled Hockey Association Brian's hockey gear is identical to that of NHL playerswith the exception of the skate runners being attached to a sled instead of shoes and the use of two hockey sticks. The sticks have picks on one end to help propel the sled.

Buffalo and eight from the RIC-Blackhawks team — including me!"

Training camps for the US National Sled Hockey Team began in October with a total of seven training camps before the team went to the Winter Paralympic Games. They flew to the camp location on a Thursday evening, held two 2 to 3 hour practices on Friday and Saturday, and one 2 to 3 hour practice Sunday morning before heading home. In addition, Brian practiced with the RIC-Blackhawks three times a week for a total of six hours of conditioning sprints, skating drills, and plenty of scrimmages.

Brian back to the laboratory and studies

When interviewed after he had returned to Chicago, Brian was even more enthused. Like many Paralympic athletes, the total experience was almost as important as the medal.

"The athlete village was a surprise to me," Brian said. "It consisted of a dining hall for all of the athletes. The village also included a cyber cafe to check e-mail and stay in contact with family and friends who were unable to come to Salt Lake City. The village had a coffee shop, a hair salon, a convenient store, and many other places to spend your time between competitions. I didn't expect living away from home in a dorm room would be as easy as it was. The many volunteers assisted the athletes in every aspect of daily living. Their job was to make things easier on us so we could compete at the highest level."

The crowds were also a surprise to Brian.

"I have played sled(ge) hockey for two and a half years now. The biggest crowd we have played a full game in front of was just a couple hundred of people, mainly family and friends. While playing in the Paralympics, we were playing in front of thousands of people. The Gold Medal Game was a sell out, 8,317 people watched and cheered us along to victory. To play in a game as big as the Gold Medal Game in front of a sellout home crowd is a feeling that I can't use words to describe, or will I ever forget."

And the experience of the Paralympics seems to be something that Brian, like Paralympic athletes before him, will use to build on as he launches into his career.

"To play on the international stage on our home soil with all of the support from volunteers, friends, family, and the spectators gave me an overwhelming sense of patriotism, and pride in our country. Plus it was just exciting to be there, and then to win . . . again, a feeling I will never forget."

Upon returning to Chicago, Brian and his teammates from the RIC Blackhawks were honored at a Chicago Blackhawk hockey game and introduced to the crowd. The support of the Chicago Blackhawks, who contributed \$25,000 to the training expenses of Chicago members of the USA Sledge Hockey Team, is another example of the improved public awareness and respect for athletes with disabilities. ...and that's the most important goal to be scored. \Box

The writer, Jan Little, was one of the first women to compete for the US in Paralympics. She competed in Tokyo, Japan in 1964.

Grant from National Institute Will Enable Study of Bilateral Amputee Gait

Steven A. Gard, Ph.D. received a \$700,000 grant award from the National Institute of Child Health and Human Development for a study entitled, "Influence of Ankle Motion on Bilateral Amputee Gait." Few outcome studies have been reported in the literature regarding the rehabilitation of persons with bilateral amputations, and there have been no published quantitative gait studies on this group of individuals to date.

This population is poorly served by modern prosthetics because little is known about their gait mechanics. Due to the extent of their disability, it has not been possible for them to walk with a normal gait pattern using existing prosthetic



Brian Ruhe will be both an investigator and a subject in the new study of bilateral amputation gait.

componentry. Bilateral amputees often appear to walk with rigid or stiff legs, which may be due in part to insufficient compliance and range of motion in their prosthetic ankles and/or knees. They may attempt to overcome prosthetic deficiencies with compensatory actions such as hip-hiking, which subsequently increases their energy expenditure during gait.

Energy demand higher with Bilateral leg amputations

Compared with unilateral amputees, persons with bilateral leg amputations have a greater need for improvement in prosthetic componentry because of their increased energy demand as they walk and their low speed of walking. Persons with bilateral leg amputations may benefit tremendously from improvements in prosthetic component design.

The purpose of this investigation is to determine if the provision for prosthetic ankle motion in bilateral lower-limb amputees significantly improves their pattern of walking. This project will use quantitative gait analysis, performed in the VA Chicago Motion Analysis Research Laboratory, to determine if prosthetic components that provide ankle motion significantly improve walking performance. Specifically, we will investigate if increased ankle motion enables bilateral amputees to achieve greater freely-selected and maximum walking speeds, take longer step lengths, reduce their trunk sway, and walk with more efficient patterns of pelvic motion with significant reduction or elimination of compensatory actions such as hip-hiking.

New knowledge may improve prostheses

The results from this study will aid in identifying limitations in current prosthetic technology that inhibit normal patterns of walking in all lower-limb amputees, including both unilateral and bilateral, and may lead to the development of more functional prosthetic technology. Additionally, information from the characterization of the walking patterns of bilateral lower-extremity amputees will increase knowledge and understanding about the ambulation potential of this small, but significant, population of persons



Cheryl Otten, (right)Senior Benefits Counselor, at Great Rivers Independent Living Center, works with Amy Lewis, also a Benefits Counselor to prepare information for a client who is returning to work.

Been There. Done That. Life Has Been The Best Training For Cheryl Ottens' Job

As One of An Emerging Group of Professionals Who Specialize in Benefits Counseling, Cheryl is Developing a Program Which Helps Clients Return to Work and Still Keep Health Care Coverage

By Jan Little

Political candidates, employers, families, medical personnel and advocates for people with disabilities frequently refer to " the unfair situation facing people with disabilities – if they go to work, they lose their medical coverage". Although legislation has been enacted to prevent loss of medical coverage, the complexity of the laws resulted in misunderstanding which, in turn, still prevents employment of people with disabilities. Changing this situation is the challenge taken up by Cheryl Ottens and her fellow staff members at La Crosse, Wisconsin based Great River Independent Living Services.

Although Cheryl admits her work as Coordinator of the Benefits Counseling Program at Great Rivers has only scratched the surface, in the past year, over 100 people have learned that they can become employed and retain crucial medical coverage. Benefits counseling is a relatively new area and has been highly developed and refined by Cheryl and her Great Rivers colleagues. To be effective, the benefits counselor must constantly study regulation changes at the Social Security Administration, state medical and vocational rehabilitation and other programs. Often, she must explain the changes to the individuals working for those programs, whose workload of dozens of cases of people with differing needs may not allow them to study changes in medical coverage when a beneficiary becomes employed.

"The biggest thing we have to fight in helping a person become employed is misinformation," Cheryl said. "Everyone from a person's mother to the Social Security Administrations may have told the individual that if he or she goes to work, benefits – particularly medical care assistance – will be lost. It's our job to teach these individuals how they can work and either retain or gradually replace their health care financial support."

Cheryl's personal experience is an important asset in being able to relate to clients, agencies and prospective employers and deliver the information to them. After graduating from high school in Prairie du Chien, she held "a bunch of fun jobs

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Then in 1986, a motorcycle accident left Cheryl with paralysis from spinal cord damage at Thoracic 5-6 level. She enrolled in Moraine Park Technical College, Fond du Lac, Wisconsin, and – in spite of a number of bouts with poor health – graduated in 1991 with a degree as a Medical Secretary.

Then, it became apparent that the source of Cheryl's health problems was an infection deep within her right leg. Although the infection never came to the surface of the leg, the bones were seriously infected. After several unsuccessful surgeries, a hemipelvectomy was performed in 1989.

Cheryl moved to La Crosse and became involved with a group of people who were actively developing programs to enable people with disabilities to live on equal status with other residents of southwestern Wisconsin. One of the people she met later became her husband, John Ottens, who works in the field of education about aspects of disabilities and lectures about the relationship between driving, drinking and disability.

Although La Crosse had numerous programs for people with disabilities, those programs were quite paternalistic in nature and designed to take care of people. Cheryl and her friends designed a service that would provide information, then place the burden of success on the person with the disability using that information. In 1993, they received funding to launch the Great Rivers Independent Living Services. Great Rivers follows the philosophy of Independent Living that emerged in the late 1960s. At least 51% of staff and Board of Directors must be individuals with disabilities. An Independent Living Center must also serve people of all ages, disabilities, income level, ethnic origin, etc. In the nearly eight years of Great Rivers existence, Executive Director, Kathie Knoble-Iverson, has built both a staff and a financial base. Most services are supported by contract and grants. For example, the Benefits Counseling program is cooperatively funded by the Division of Vocational Rehabilitation, Social Security and the Department of Health and Family Services.

"When people with disabilities come to us," Cheryl says, "we let them know they are no longer a patient. They're in charge of their own life. So often, after an accident, illness or developmental disability, people are used to being cared for and told what they can do. We help to break that self-image."

It would be hard for a person with a disability to try to use his or her disability as an excuse when faced with the energy, enthusiasm and achievements of the vivacious Cheryl as she tackles each individual case. "Ideally, we reach a plan so that the person can move into the workforce and not lose any medical coverage. Some will be included under their employer's health care program, but will have to complete a six month to one year period during which they are not covered for their preexisting condition. That's when we can be very creative and use Medical Assistance - the name by which the state of Wisconsin refers to Medicaid - as a coinsurance. Under some circumstances, Medical Assistance can be used long-term to cover such costs as personal care that few health care programs cover. No one should go without adequate health care coverage. No one should use changes in health care coverage as an excuse to remain unemployed.

An Independent Living Center (ILC) may be the resource that makes it possible for your client to return to full participation in his or her community. To locate an ILC in your area, contact National Independent Living Centers at 1/800-924-1220.

The Benefits Counseling program at Great Rivers Independent Living Center was developed in response to the need to implement the Ticket to Work program for people with disabilities. Ticket to Work is being phased in a few states at a time.

The Ticket to Work and Self-Sufficiency Program, established by the Ticket to Work and Work Incentives Improvement Act of 1999, will make more services available to Social Security and Supplemental Security Income beneficiaries with disabilities who are seeking employment services, vocational rehabilitation services, and other support services to assist them in obtaining, regaining, and maintaining self-supporting employment. Under the Ticket to Work program, the Social Security Administration will issue tickets to these beneficiaries, who will have the option of taking the ticket to service providers of their choice called employment networks. Employment networks will also be able to choose whom they serve under the program. The first phase of the Program has begun and SSA is distributing tickets in the following States: Arizona, Colorado, Delaware, Florida, Illinois, Iowa, Massa-chusetts, New York, Oklahoma, Oregon, South Carolina, Vermont, and Wisconsin. For more information, see the Ticket to Work program web site at http://www.ssa.gov/work/Ticket/ticket.html.



NOTE: The Capabilities date designation has been changed from "January, April, July and October" to "Winter, Spring, Summer and Autumn" to more accurately reflect our quarterly nature. Volume and number designations remain the same.

Dudley S. Childress, PhD. is Awarded the Paul B. Magnuson Award from the Research and Development Department of Veterans Affairs

Dudley S. Childress, Ph. D., has been awarded the Paul B. Magnuson Award by the Research and Development Service of the Department of Veterans Affairs. The Magnuson Award is the highest honor given by the Service. It consists of a one-time cash award of \$5000 plus \$50,000/year for



Dr. Mindy Aisen, Director of Rehabilitation Research and Development Service, (left) joins Dr. Childress (center) and Dr. John Feussner, Chief R&D Officer, at the award ceremony.

three years to supplement ongoing VA research. Childress received the award at a dinner in Washington, D.C. on February 11, 2002 during the Third National Rehabilitation Research and Development Conference of VA.

The award is named after Dr. Paul Magnuson a highly respected Northwestern surgeon who successfully built the VA Healthcare System after WWII when he was Chief Medical Director of VA. Magnuson was the founder of the Rehabilitation Institute of Chicago and an early promoter of rehabilitation medicine, physical therapy, and prosthetics. He was Chairman of the Department of Bone and Joint Surgery of Northwestern's Medical School from 1942 to 1950. President Truman appointed him Chairman of the Commission on the Health Needs of the Nation in 1952. Dr. Magnuson was vitally interested in problems of amputation and the amputee, and his efforts were responsible for much of the research work instituted by VA on prosthetic devices.

Dudley S. Childress directs the Prosthetics Research Laboratory, the Rehabilitation Engineering Research Program, and is Executive Director of the Prosthetics-Orthotics Center. He is a Senior Research Health Scientist in the VA Chicago Health Care System— Lakeside Division and is Professor of Physical Medicine

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and Rehabilitation and Biomedical Engineering at North-western University.

In 1945, Surgeon General Kirk requested that the National Research Council convene a meeting in Thorne Hall on Northwestern's Chicago Campus to consider what to do about improvement of prosthetic devices for the returning veterans with limb loss. Dr. Magnuson and Paul E. Klopsteg, Ph.D., ScD., Director of Research at the Technological Institute, took part in that meeting, which launched the federal effort in prosthetics research and which later expanded into the broader field of engineering in rehabilitation. Subsequently, Dr. Clinton L. Compere, former head of prosthetics at McGuire Army Hospital after the war, joined Magnuson at Northwestern. Dr. Compere assisted with the early growth of the Rehabilitation Institute of Chicago, and hired Childress in 1966. Compere had started The Prosthetics Research Laboratory at Northwestern University in 1956 and the Prosthetics and Orthotics Education Program in 1958. He secured the Rehabilitation Engineering Research Program in 1972.

Childress has been involved with these programs for 36 years. In 1998, through VA assistance, a state-of-the-art motion analysis system was brought into operation in the research programs, primarily as a research tool for studies concerning prostheses and orthoses and other ambulation and manipulation aids. This instrument is one of only a few in the world dedicated completely to studies in the field of prosthetics and orthotics.

Craig Heckathorne Is Guest Lecturer at ACPOC Conference

Craig Heckathorne presented the Hector Kay Guest Lecture Association for Children's Prosthetic and Orthotic Clinics (ACPOC) Conference held April 11-13 in Toronto, Canada. The Lectureship is named for Hector Kay, who founded the ACPOC, An Australian by birth, who worked in the area of prosthetics and orthotics evaluation with the Prosthetic and Orthotic School of New York University, Kay became Associate Director of the Committee on Prosthetics Research and Development (CPRD) of the National Research Council. Craig Heckathorne has worked extensively in the area of research in upper limb prosthetics and has worked extensively with children with amputations. Heckathorne also has teamed with prosthetists from the Rehabilitation Institute of Chicago to design upper limb prosthetic systems for numerous people with high-level, bilateral amputations.

Dale Yasukawa, (1958-2001)

Dale Yasukawa, CP, former Codirector of the Prosthetic/Orthotic Laboratory at the Rehabilitation Institute of Chicago (RIC) and who cooperated frequently with the Northwestern University PRL & RERP staff, died November 22, 2001 of complications following cardiac surgery. A Dale Yasukawa memorial fund has been established through the O & P Assistance Fund. The fund will assist the health and fitness pursuits of the disabled community and will be used to underwrite fitness clinics which focus on these goals. Fitness of people with disabilities was of strong interest to Dale. Individuals wishing to contribute to the fund may send checks to the O & P Assistance Fund, 330 John Carlyle Street, Suite 200, Alexandria, VA 22314.

In tributes to Yasukawa published in the January 15 issue of *O* & *P* Business, his colleagues repeatedly commented about Yasukawa's kindness and concern for the people for whom he designed and fitted prostheses. In his comments following Dale's death, Dudley S. Childress noted, "Dale was a fine man who quietly went about helping people and doing good. He will be greatly missed."

Hansen Completes Requirements for Doctorate in Biomedical Engineering

Andrew H. Hansen, who has completed all requirement for the Doctoral Degree in Biomedical Engineering at Northwestern University, presented findings to date in his research area of the role of the foot and ankle in human walking at several workshops and seminars. On November 9, 2001, he presented at the Motion Analysis Center at the Children's Memorial Hospital. He presented at the Biomedical Engineering Fall Seminar on November 28, 2001. Hansen's doctoral degree will be awarded at graduation ceremonies in June 2002.

Karolewski Awarded Fellow Status By AAOP

Thomas Karolewski, CP, assistant director of prosthetics education at Northwestern University's Prosthetic Orthotic Center is to become a Fellow of the American Academy of Orthotists and Prosthetists. The award ceremony was held on March 21, 2002 in Orlando Florida at the national meeting for the American Academy of Orthotists and Prosthetists. The Fellow award is the highest designation the Academy offers practitioners for personal achievement in Academy continuing education.

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To earn the level of Fellow of the Academy an ABC certified practitioners must complete three Certificate Programs for Professional Development within a five year time span. To earn a Certificate of Development the practitioner must complete eight of ten certificate modules including three core modules. The practitioner must also be an Academy member. This demonstrates to colleagues, patients and third party payers that the practitioner is committed to professional development and excellence in education.

The Fellow status is current for five years. To renew the Fellow designation the practitioner must continue earning Certificates of Professional Development, participate as faculty in the Certificate Programs, or write articles for the professional journal (JPO)."

Participation in CIR/NUPOC Distance Education Courses Grow

The joint program developed by Northwestern University Prosthetic Orthotic Center (NUPOC) and the Center for International Rehabilitation (CIR) in distance education is making it possible for prosthetists in remote areas to train in the latest prosthetic techniques. Twenty three prosthetists in Nicaragua, El Salvador and Guatemala are studying using the pilot program.

This pilot program focuses on prostheses for the lower extremities. Most of the course is conducted online with students having access to an online field manual and mentors through chat rooms. They can also talk to each other in real time. The students frequently use computers at the hospitals or rehabilitation centers where they work or at a cyber cafe. The course also includes a CD-ROM that has supplemental video and audio materials that would take too long to download on the slow-speed connections that are typical in South America.

The lessons for the prosthetics course was developed at NUPOC under the supervision of Mark Edwards, CP, Director of Prosthetic Education. Web CT, a company based in Lynnfield, Massachusetts, donated the software and translation of the lessons into Spanish. The CIR, under the direction of William Kennedy Smith, MD, secured the funding and coordinated the project. CIR has also conducted a campaign to make prosthetists in Central America aware of the opportunity.

In addition to the internet-based academic portion of the program, students come together to participate in practi-

cal workshops that include assessment of the needs of the amputee in a clinical setting and the actual fabrication and fitting of a prosthetic device under the supervision of qualified prosthetic professionals. Trainees have the opportunity to use their communication, patient management, patient education, and prosthetic skills in actual encounters with patients. Faculty use the workshops to verify students' proficiency in evaluating, casting, modifying, laminating, aligning, and manufacturing a prosthetic device. Certificates are issued to students that successfully complete the course. Participants automatically become part of the CIR Rehabilitation Network and have access to CIR technologies and management tools.

In this pilot project, an instructor is also travelling through Central America to meet with each student for a hands-on clinical workshop. The instructor will also conduct a final evaluation of the student before he or she is awarded a certificate for graduating from the course.

The distance education program is attracting attention from many parts of the world. Several universities have contacted NUPOC and CIR to discuss cooperative efforts. For further information contact CIR a t333 East Huron Street, Suite 225, Chicago, IL 60611.

Sophie Lambla Joins NUPRL Staff

Sophie Lambla will participate in research projects in the Veterans Administration Chicago Motion Analysis Laboratory (VACMARL) under the direction of Steven Gard, PhD. Ms. Lambla comes from Paris, France and will study under a grant from the Ecole Nationale Supeieure de Physique de Strasbourg (ENSPS), an engineering school specializing in physics, automation and signal processing.

Miff and Farrell Co-Chair CUBIC

Steven Miff and Todd Farrell, both candidates for the Master's Degree in Biomedical Engineering at NU were student co-chairmen at the Chicago Universities Bioengineering Industry Conference (CUBIC). CUBIC was hosted by Illinois Institute of Technology, University of Illinois at Chicago, and Northwestern University and held February 11 at Northwestern. The event brought together academia and industry in the Chicago area. It is largely a student-organized event to provide an opportunity for students to sharpen their leadership skills and interact with industries in several stages of the planning.

Events included a keynote address, panel discussions on the preparation of students for industry, entrepreneurial support from government agencies for bioengineering startups and an industry panel discussion by industry leaders as well as a career fair.

Below Knee Amputation: A Guide for Rehabilitation

While recognizing that each person's experience with a below knee amputation is individual, the authors of this new comprehensive guide for rehabilitation after amputation have drawn upon years of experience in working with people with amputations. The authors of the 30-page book are: Todd Kuiken, MD, PhD, Director of Amputee Services, Rehabilitation Institute of Chicago (RIC); Mark Edwards, CP, Director of Prosthetic Education, NUPOC; and Nicole T. Miceli, RIC.

Written in easy-to-read, person-to-person style, the Guide begins with a discussion of what a person may expect to experience emotionally when faced with an amputation. How to recognize depression, for example, is clearly outlined, followed by suggestions about treating and overcoming depression. References direct the reader to support groups and on-line support.

What can I expect after amputation?

The reader is prepared for experiencing phantom limb sensations and given suggestions on how to deal with them. Another important concern is caring for the residual limb following amputation. Detailed instructions are set forth to teach the person proper cleansing and massage to promote good health of the skin of the residual limb.

The Guide includes a number of photographs to familiarize the reader with such topics as various methods of shaping the residual limb and exercises to regain strength and flexibility. The first third of the book concentrates on helping the reader prepare to be fitted for a prosthetic limb.

One of the more important aspects of obtaining a prosthetic limb is the financing of that prosthesis. The authors offer no sugar-coating on this topic and warn the reader that insurance companies may be reluctant to purchase more than the most basically necessary prosthesis or that insurance companies may claim to pay for only one prosthesis for a lifetime.

Since lower limb prostheses are a system made up of numerous components, the Guide gives a great deal of detail

describing different types of prosthetic feet, sockets, suspension systems and specialty components, such as shock pylons and tibial rotators. The advantages of each component are compared with similar components.

Returning to a person's previous life style following an amputation is aided by a number kinds of therapies and assistance. The authors describe what the reader should expect to gain from each therapy and how to decide what other assistance — such as driver evaluation and rehabilitation he or she needs.

Life after amputation can be very full of fun

One of the most important parts of the book is the rather adamant assumption that the person will enjoy many activities after being rehabilitated after an amputation. Readers are invited to choose from golf, hiking, cycling, running, swimming and other sports. No need to become a couch potato is the clear message that closes this Guide. Of course, the Guide lists references of books, publications and organizations which will be helpful to the person with an amputation.

The book was funded by The Simon and Ester L. Kahn and Dr. Yeongchi Wu Amputee Research and Education Fund. Copies are available from:

> Resource Librarian Learning Resource Center Rehabilitation Institute of Chicago Room 1671 345 East Superior Street Chicago, Illinois 60611 Phone: 312/238-2859 Fax: 312/238-4451 e-mail: bdelahunt@rehabchicago.org

The publication will make an excellent addition to the reference collection of prosthetists, doctors and treatment facilities



Coordinated by Robert M. Baum Prosthetic Program Manager, P&SAS SHG, VA Central Office, Washington D.C.

As we continue to get additional inquiries as to how to and who can enroll for VA health care, I thought it would be beneficial to republish those procedures. Remember, you need to be enrolled before any medical services, including prosthetic services, can be provided by the VA.

Enrollment means you are eligible for a comprehensive Uniform Benefits Package of outpatient and inpatient services that includes:

- Preventive services, including immunizations, screening tests, and health education and training classes;
- Primary health care;
- Diagnosis and treatment;
- Surgery, including outpatient surgery;
- Mental health and substance abuse treatment;
- Home health care;
- Respite, hospice care and palliative care;
- Urgent and limited emergency care services in VA facilities;
- Drugs and pharmaceuticals;

Medications are covered by the program as long as they have been prescribed by a physician employed by or under contract with VA. Some veterans will be required to make a co-payment for prescriptions.

Exclusions

Some health care services that are not normally covered by the Uniform Benefits Package include abortion, membership in health clubs or spas for rehabilitation, special private duty nursing and gender alteration.

Drugs and medical devices not approved by the Food and Drug Administration are not covered, except under special circumstances.

Services available on a case-by-case basis

The Uniform

Benefits Package

By: Robert M. Baum

If you are an enrolled veteran, you may be eligible for some services that are not part of the Uniform Benefits Package. These services were not changed by the Veteran's Health Care Eligibility Reform Act of 1996. You must still qualify for them on a case-by-case basis and special restrictions apply to each.

These services include:

- Limited nursing home care;
- · Limited domiciliary care;
- Limited non-VA hospitalization or health care services for veterans with special eligibility;
- Limited dental care;
- Readjustment counseling;

- Adult day health care;
- Homeless program;
- Sexual trauma counseling

Enrollment in the VA health care system means you receive comprehensive health care services for the care medically indicated, when and where you need it. In other words, once you are enrolled, you may receive care at any VA location- without repeating the application process during the enrollment period.

Veterans can apply for VA health care enrollment by completing VA Form 10-10 EZ. The 10-10 EZ may be obtained by visiting, calling or writing any VA health care facility or veterans' benefits office. You can also call toll-free (1-877-222-8387) or access the form on the internet at www.va.gov. (Click on on-line applications.)

You can submit a completed form in person or by mail. Please be sure to sign your application form, otherwise it cannot be processed for enrollment. VA Form 10-10 EZ is a one-page application form front and back. Most veterans are able to compete the form in less than 15 minutes.

If you are a new VA patient, your application for enrollment will be generated automatically as part of your patient registration process the first time you visit a VA health care facility.

If you are currently receiving care or have received care from VA at ant time during the last year, your application for enrollment may have been automatically processed. You may want to check with your local VA health care facility if you are uncertain of your enrollment status. Once enrolled, you will normally remain enrolled for one year. Your enrollment will be reviewed and renewed annually, depending on your priority group and available VA resources.

Under the Uniform Benefits Package, VA offers you, the veteran, a comprehensive health care plan that provides the care you need. \blacksquare

Please send us your articles, success stories, comments or suggestions for future issues in the VA Presents. E-mail: Robert.Baum@hq.med.va.gov Address: PSAS SHG (113), 810 Vermont Ave., NW, Washington, DC 20420. Phone (202) 273-8515. Fax: (202) 273-9110.

Terry Karpowicz Continues to Contribute with Participation in Research Projects at NUPRL & RERP

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will assist Northwestern in seeking funding for a larger investigation on the effect of socket type on transfemoral amputee gait.

Karpowicz is also currently participating in a VAfunded study investigating the effects of two different shockabsorbing prosthetic components on the gaits of persons with unilateral trans-femoral amputation. While both components are believed to increase shock absorption during walking and other high impact activities, it is not known which of the two designs is preferable for trans-femoral amputees.

After performing a baseline gait analyses on subjects walking on their conventional prostheses in the VA Chicago Motion Analysis Research Laboratory (VACMARL), they are fitted with either the Endolite Telescopic-Torsion (TT) Pylon or the Otto Bock 3R60 Knee. The Endolite TT Pylon is a spring-loaded shock-absorbing pylon that compresses telescopically as it is loaded during the stance phase of walking. The Otto Bock 3R60 Knee is designed to provide a small amount of stance-phase knee flexion in early stance phase.

After the subject has walked with the first shock-absorbing component for a period of a few weeks, they return to VACMARL for a second gait analysis. Following the second gait analysis, the first shock-absorbing component is removed from their prosthesis and the second one is fitted to the subject. The subject will walk with the second component for several more weeks, then return to VACMARL for their third and final gait analysis. In addition to the gait analyses, the research subjects are asked to fill out questionnaires in order to record their opinions of walking with these two shock-absorbing components. Our goal is to increase understanding about the role of shock absorption in amputee gait, and to determine if these mechanisms provide significant benefit during walking for persons with trans-femoral amputatid *Capabilities* ISSN 1055-7156 Northwestern University Prosthetics Research Laboratory and Rehabilitation Engineering Research Program 345 E. Superior Street, Room 1441 Chicago, IL 60611-4496

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