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At Methodist Rehab, we believe the best way to tell our story is to share our patients’ stories.

By showcasing people who have regained abilities and are back doing the things they love, we are able to illustrate the very essence of our mission.

And according to a recent Ways & Means readership survey, our magazine audience approves of that approach. Survey participants said they were most interested in patient features. But they also want to know more about our research, services and technology, so we’ve packed news about all-of-the-above in this issue.

On pages 32 to 41, you’ll learn how four athletes with MRC ties are on a path to reach the pinnacle of competition for people with physical disabilities — the 2012 Paralympics in London.

Such a quest requires an extreme commitment to be sure, but athletics are hardly the only arena where our former patients must overcome challenges. College life offers some hurdles, as well. So on pages 24 to 29, we asked five current and former students to advise others on how to stay the course on campus.

On the research front, Dr. Dobrivoje Stokic shares what scientists now know about the brain’s ability to heal on page 58. This issue also includes information about the many presentations and papers produced by our busy research staff.

On page 56, you’ll see how Methodist Pain Management’s outreach efforts are spreading MRC’s expertise to rural communities in central Mississippi.

We’re also bringing new technology to our region, most recently becoming the only facility in Mississippi to offer Armeo®Spring therapy. On page 22, stroke survivor Fannie Nelson tells how Methodist Rehab staff used the innovative system to help her overcome arm paralysis.

“These people gave me my life back,” she said. And that’s what we love to hear — another rehab story with a happy ending.

Mark A. Adams
President and Chief Executive Officer
Methodist Rehabilitation Center
Following the extraordinary pledge of $500,000 to the Wilson Research Foundation at Methodist Rehab Center, hospital and bank officials celebrated the opening of the BankPlus Conference at MRC.

“This gift is funding research to discover innovative treatments for patients who suffer from stroke, brain or spinal cord injury, multiple sclerosis and other disabling injuries or illness,” said foundation director Chris Blount.

“We deeply appreciate BankPlus for helping establish Methodist Rehab as a center of excellence in clinical care. Their generous gift will also improve rehabilitation medicine globally through publication of our research findings.”

BankPlus President and CEO Bill Ray said the bank is proud to be associated with a hospital that is having such a positive impact on the lives of Mississippians.

“We have had so many employees of the bank and their family members come to Methodist Rehab to recover,” Ray said. “We know firsthand the dramatic improvements in quality of life patients can realize at Methodist Rehab, and at the core of that is ongoing research to discover better ways for patients to recover ability and hope.”
The Wilson Research Foundation is the primary supporter of Methodist Rehab's research program, the Center for Neuroscience and Neurological Recovery. Its goals are to:

- improve diagnoses.
- provide access to innovative therapies.
- refine treatments to meet individual patient needs.
- evaluate emerging therapies.
- provide assistive technology solutions for mobility, computer access and environmental control.
- allow patients to participate in groundbreaking research.

“The Wilson Research Foundation is the primary supporter of Methodist Rehab’s research program, the Center for Neuroscience and Neurological Recovery. Its goals are to:

The Conference Center is the primary conference facility for MRC, centrally located in its Atrium Mall, one of the busiest corridors on the University of Mississippi Medical Center campus. Marking the center entrance is the beautiful bronze statue and memorial of Earl R. Wilson, founding chairman of MRC.

The 2,500-square foot conference center has a seating capacity of 100-plus. It hosts numerous events for MRC staff, as well as Grand Rounds and educational events for both Methodist Rehab Center and UMMC faculty, doctors, medical students, nurses, therapists, researchers, administrators and many others.

In addition, a variety of groups meet regularly in the Conference Center, including the Mississippi Paralysis Association, support groups for ALS, brain injury, stroke and spinal cord injury, the Boy Scouts and others. The center hosts legislative luncheons, art shows, holiday parties and many other special events.

“We deeply appreciate BankPlus for helping establish Methodist Rehab as a center of excellence in clinical care. Their generous gift will also improve rehabilitation medicine globally through publication of our research findings.”

— Chris Blount,
Executive Director, Wilson Research Foundation
Top left, Bill Ray, president and chief executive officer of BankPlus, at the dedication of the BankPlus Conference Center. Above, the conference center entrance sign in the second floor Atrium Mall. The conference center entrance is next to the commemorative bronze statue of Earl R. Wilson, founding chairman of Methodist Rehab.
Hallelujah!

Therapy Helps Flowood Pastor Make Triumphant Return to Pulpit

by Lucy Schultze
Dr. G.R. “Ricky” Gray was gathering his courage in a back room at Flowood Baptist Church when his youngest son, Michael, found him there.

“Are you scared?” he asked.

“Son, I’m more scared now than I was 42 years ago,” his father said.

After more than four decades of giving sermons week after week, Gray was struggling with a preacher’s version of stage fright. It had been eight weeks since he’d last been in the pulpit — eight weeks longer than he’d ever gone before. And a lot had happened in that time.

Gray had suffered a terrifying seizure, been diagnosed with a brain tumor and undergone surgery to have it removed. He had since been working with speech and occupational therapists to recover from severe impairment in his word use, memory and cognitive skills.

Now the day he’d been pushing toward had arrived, but approaching the pulpit seemed about as daunting as a mountain climb.

“It was just the thought of not having preached, not having been up in front of people,” said Gray. “But once I got started, I was OK.”

Gray’s speech therapist at Methodist Rehab had been helping him prepare for his return to the pulpit. While his neurosurgeon, Dr. Lynn Stringer, had given him the green light, recovering his mental capacities after surgery took time.

Speech therapist Kimberly Boyd first began working with Gray in October 2010 at Methodist Rehab’s East Campus in Flowood, where he also worked with occupational therapist Suzanne Colbert.

At the time, Boyd’s tests for aphasia — a disorder that affects a person’s ability to comprehend and express language — showed Gray could only associate a picture with the appropriate word about half the time. His reading comprehension scored only 40 percent.

“When you think about it, a preacher’s job is studying books, understanding what he reads and condensing it into a sermon. When you have an impairment where you can’t understand and can’t even write a sentence, it’s a serious thing.”

— Speaker Therapist Kimberly Boyd

“His understanding was impaired as well as his ability to express himself,” Boyd said. “It’s really hard to do therapy when both of those things are in play. But he progressed surprisingly well.”

As the sessions began, Boyd started by focusing on Gray’s language skills. They spent time on exercises like matching the correct word to a picture and talking through the meaning of passages he would read.

“Kim worked with me on all kinds of reading material,” Gray said. “She listened to my conversation, talking about anything that would prompt me — from ‘What did you do this weekend?’ to things that were going on in my preaching ministry. Through it all, I was able to more or less develop my speech patterns correctly.”

Their progress was aided at home by Gray’s wife, Jewell Faye. A retired elementary school teacher, she worked with her husband on his language exercises on the days when he didn’t go to therapy sessions.

The more Gray’s cognitive abilities returned, the better he was able to understand the process itself. His impatience added fuel to his recovery.
“What’s hard for him is he’s a very educated man — he’s got two doctorate degrees — and when his progress was really starting to come about, he wasn’t satisfied with how fast it was coming,” Boyd said.

“I had to remind him about every two weeks: ‘You had brain surgery. You have to think about how far you’ve come from where you started.’”

Although Gray looked to God for patience, he struggled to find it within himself.

“That’s been a little hard for me to cope with, because I do expect a lot and it’s not comfortable when you can’t do what you did before,” he said. “Even now, I find myself pausing as I speak, and that’s just not me. But Kim said, ‘Be patient. Don’t expect too much too soon.’ She gave me some good advice.”

It was with those words in mind that Gray stepped behind the pulpit on Nov. 28 at Flowood Baptist Church, where about 275 people worship on Sunday morning. And though it gave him frustration, Gray took his therapist’s advice and brought a set of notes with him.

“Ordinarily I pretty much do things from memory, but that morning I took my ‘cheat sheet’ up there,” Gray said. “I told them, ‘I don’t normally like to have this, but they told me I probably would need it.’”

As it turned out, he relied on the notes only as a prompt for how he’d planned to end the sermon. By the second week, he brought notes just in case, but laid them face-down and aimed not to look.

He recalled a tip given to him early in his recovery by Sherry Brown, an inpatient speech therapist at MRC.

“I remembered what was told to me, to say something that is close to the word you want to say, and it will probably come back to you,” he said. “So I spoke about three or four sentences, and sure enough, it got me back on track.”

From the third week on, Gray was able to preach without the use of notes. While his recovery was challenging in many ways, his church family stepped up to care for their pastor of 24 years. The eight ordained men in the church took turns filling the pulpit, and men in the church volunteered to drive Gray around town so that he could keep up with hospital visits and other duties until he was able to get behind the wheel again.

Others continued to help out with preaching duties as Gray added back one morning service, then two, and then Wednesday services. By Jan. 16, he had resumed his full preaching load, but he continued speech therapy sessions through February.

His therapists marvel at how well he has exceeded their expectations.

“Patient motivation is a big factor, and I think a big reason he made so much progress was his drive,” Boyd said. “He had a strong will, and he just wasn’t going to let anything stop him.”
Lee Silverman Voice Therapy (LSVT) is a proven method for treating speech problems related to Parkinson’s disease and other neurological conditions. The therapy can help people improve their ability to speak louder, clearer and with more inflection.

Vital-Stim Therapy addresses swallowing disorders such as dysphagia, a common problem for a large percentage of stroke patients. The therapy uses electrical stimulation to re-educate and train the throat muscles used for swallowing.

Augmentative Communication Devices can be a life-changing resource for people who need special assistance to voice their thoughts. And Methodist Rehab’s speech therapists have the training to consider each person’s cognitive, vision and motor skills and recommend the best communication device to meet their needs.

For more information on outpatient speech therapy services at MRC, call 601 936-8888.

MRC speech therapist Kimberly Boyd shares a laugh with Ricky Gray as he works to match the correct word to various pictures. The exercise was one of many strategies used to improve his language skills. When Gray finally returned to the pulpit, Boyd and MRC occupational therapist Suzanne Colbert were in the pews to celebrate his progress.
Now I can...

share my faith

As doctors worked to save Will Graves’ life after a paralyzing car crash, they cut off his clothes and necklace — but never touched the Fully Rely on God (FROG) bracelet on the 16-year-old’s left arm.

So when the talented athlete for West Jones High School learned he was a quadriplegic, he took the FROG message to heart. He began handing out bracelets and sharing his story, touching thousands with his faith and perseverance.

“How can you be so positive? I get that all time,” said the Jones County Junior College student who appeared in an NFL Films documentary and maintains a busy speaking schedule. “From the beginning, God said: ‘Have faith, and I’ll take you through it.’ I believe troubles are the tools God uses to fashion us for better things.”
Now I can...  
be a caregiver again

Beverly Coleman of Brandon awoke to a strange new reality in June 2008.

After a collision with a dump truck bruised her brain and battered her body, the nurse at Hospice Ministries, Inc. was the one needing constant care. “That was the hardest challenge,” she said. “I don’t like being a patient. I like helping people.”

It’s a calling shared by the staff at Methodist Rehab’s outpatient Quest program, a community reintegration program that helps people with brain injuries return to work, school and community life. Their dedication helped Beverly reclaim the skills necessary to return to a job she loves.

“The emotional and spiritual support I received from the therapists kept me going and motivated to meet my goals,” she said. “They were amazing and encouraging. It’s more than a job to them. They gave every bit of what they had.”
As a plant and soil scientist, David Lang often jokes that he is “out standing in his field.” So when the witty Mississippi State professor suffered a severe brain injury, co-workers wanted to know: Does he still have his sense of humor?

"Yes," said his wife, Maureen. And she’s happy to report that his considerable intellect is intact, too. “They initially told me it would be at least a semester before he could think at all,” she said. But just a few months after falling from a ladder while patching his roof, the agronomist presented research at a national meeting. Now, he’s back in the classroom full-time.

“The therapy at Methodist Rehab was real helpful in getting me back on my feet,” he said. And he plans to keep those feet planted firmly on the ground. “We finally had a new roof put on in March,” he said. “And I just watched from the yard.”
Louise Hayes of Gulfport had a trailer full of assistants to help her dress as she transformed into a 1960s-era maid for a brief role in the summer blockbuster "The Help."

All the attention was nice, but not necessary.

“I had to let them know I can do some things myself,” said Hayes, 72, who lost her right arm in a car accident four years ago and has since adapted well to the use of a prosthetic limb.

“I needed help with some of the buttons, but other than that, I could put everything on myself,” she said. “Still, it was really nice to have people there to cater to me.”

For her role, Hayes wore a gray pinstripe uniform and served coffee to characters seated in a living room. While the scene ultimately wound up on the cutting room floor, Hayes said she enjoyed getting an insider’s view of moviemaking.

She arrived on location in Greenwood one day in August 2010, joined by her husband and sister. All of them were treated to the breakfast and lunch spreads served to the cast and crew.

“It was really nice, and the whole cast came out to eat while we were there eating,” Hayes said. “We got to see some of the stars of the show.”

Released in August, the movie is based on the bestselling book by Jackson native Kathryn Stockett. It explores the relationships between African-American domestic workers and the white families who employed them during the segregation era in Mississippi.

Hayes’ role served to illustrate the imperious attitude of the character Missus Walters — a woman so difficult to work for she “can’t keep a maid” and must settle for one who’s missing an arm.

Producers were able to find the right fit for the role by contacting Methodist Orthotics & Prosthetics in Flowood, where Hayes was fitted for her first prosthesis.

“I got a call from Methodist Rehab wanting to know if I was interested,” Hayes said. “When I told them I was, they put me in touch with the producer. He gave me a call, and I agreed to do it. It was just smooth sailing from there.”

Hayes’ scene was filmed in the living room of a Greenwood home. The director and crew did several takes of the scene in which Hayes serves coffee to Hilly Holbrook, played by Bryce Dallas Howard. In the scene, Hilly is talking on the phone to her mother, Missus Walters, played by Sissy Spacek.
I was really taken aback to get the chance to talk to her,” Hayes said of Spacek. “She’s so down-to-earth, you really felt comfortable talking to her. My sister and I both got her autograph, and she wanted to know how I lost my arm.”

It was in January 2007 that Hayes and her husband, Luther C., were riding down Highway 49 in Gulfport at night when a truck towing an unlit flatbed trailer made a U-turn in front of them. They didn’t see the trailer until they hit it.

As their car turned in the impact, it flipped over into the road. Hayes’ husband was uninjured in the crash, but she sustained a bad cut across her forehead requiring a skin graft. Additionally, her right hand was crushed.

Doctors at the University of Alabama-Birmingham hospital had to remove her hand and lower arm, up to about three inches beneath her elbow. They referred her to Methodist Orthotics & Prosthetics to be fitted for a prosthetic limb, and soon Hayes was reclaiming her former life.

“It was a shock losing my arm, because I love to do things with my hands like cooking and sewing,” she said. “But I have taught myself to do a lot of things that some people are really surprised I can do.”

The prosthetic limb Hayes wears has two interchangeable hand attachments. Around the house, she uses a simple device that works like a clamp. When she goes out, she changes to a prosthesis that more closely resembles a natural hand, with fingers that move.

“It was awkward using it at first, but it only took me a week or two to catch on,” she said. “I realized all I had to do was flex my muscles, and after a while all I had to do was think about what I wanted to do and it just happened. I can open and close my prosthesis just like my real hand.”

The device is called a myoelectric prosthesis, said Larry Word, a certified prosthetist/orthotist and manager of Methodist Orthotics and Prosthetics in Hattiesburg. He fitted Hayes for a second prosthesis after her initial fitting at the Flowood office.

The prosthesis is powered by a battery pack and designed to register the movements made by her remaining arm muscles.

“We try to target the sites on the limb...
where you have active musculature,” Word said. “When the electric signal is generated by muscle contraction, the electrodes in the socket pick up on those impulses and will either open or close the hand based on which muscles contract.”

In Hayes case, Word was impressed with how well she adapted to wearing the prosthesis.

“Some people will get one and discover it’s a little heavy or tough to get on, so they may not wear it all the time,” he said. “But she never came in the office not wearing it. It did a lot to help her with her overall body image.”

It’s also become an essential part of Hayes’ lifestyle — not to mention a novelty for the children she teaches in Sunday School.

She has been able to return to virtually all the activities she enjoyed before the accident, including cooking, sewing quilts and making jewelry.

“The prosthesis enables me to do crafts, do things in the kitchen and just do whatever I need to do,” she said. “It’s almost like it’s my real hand.”

Hayes also spends time reading, and counts “The Help” among the books she enjoyed in the past year. She went out to get the book about a month before she was to report to the filming location, and soon noticed a lot of other people were reading it, too.

“Some of the story sounded familiar, and some of it didn’t,” said Hayes, who grew up in Hattiesburg. She lived abroad and traveled widely with her husband while he was in the military. They settled in Gulfport in 1969.

Hayes has since worked in accounting along with raising four daughters. While she never worked as a maid, she did work as a babysitter for a family when she was young and could relate to some of the characters’ experiences in “The Help.”

What she really connected with, though, was the experience of taking part in the making of a movie.

“It was a great experience,” she said. “It really made me want to do more.”
The steady beat of a metronome typically calls to mind memories of piano lessons. But when Elnora Coates of Jackson hears the tireless tempo, she thinks of how far she has come since a 2009 stroke paralyzed her right side. Thanks in part to Interactive Metronome (IM) training at Methodist Rehab, Coates is almost back to being the woman who “never sat still.” “At first, I couldn’t do anything for myself,” said the former teacher’s assistant for the Vicksburg-Warren County schools. “But I would say I’m 95 percent recovered right now.”

Coates was introduced to the innovative therapy at Quest, a Methodist Rehab outpatient program in Jackson. Methodist Rehab has six therapists specially trained in IM, a therapy that fosters improvements in attention, motor planning and sequencing.

Quest occupational therapist Lisa Poe said the challenging activity helps strengthen motor skills and many neurological functions related to planning, organizing and language. Typical candidates include people with traumatic brain injury, stroke, Parkinson’s disease, multiple sclerosis, incomplete spinal cord injury, balance disorders, limb amputations or developmental disorders.

During the therapy, patients wear headphones and listen to the rhythmic clang of a computer-generated cowbell. As they strive to synchronize hand and/or foot exercises to the tempo, they receive auditory and visual feedback. The IM hard drive records their success rate in milliseconds, during and at the end of each task.
"It was real difficult at first, but I was motivated," Coates said. "After about a week or two, I was getting the hang of it. Then I started doing things at home without even noticing it — like holding a spoon or grasping things."

At Quest, therapists look for ways IM therapy might expand a client's capabilities. And Poe felt confident it would help Coates improve her fine motor skills. Despite months of traditional occupational and physical therapy, Coates still struggled to use her right hand effectively. "I couldn't grasp a fork and spoon. I couldn't wash dishes. I couldn't tie my shoes," she said.

Worse still, Coates is a diabetic who couldn't give herself insulin shots because she lacked the ability to pick up needles and load the syringe. So Poe created several IM exercises where Coates could simulate hand movements that she needed to master.

"She would squeeze the metronome trigger with her thumb, forefinger and middle finger to fine-tune her three-point pinch," Poe said. "At the end of the second week of training, she was able to give herself the insulin shots."

By utilizing a special "Gait-Mate" sensor in her shoe, Coates also underwent IM training to improve her walking ability.

"She wore wireless headphones and walked to the beat of the reference tone with the guide sounds," explained Quest physical therapist Rachel Dear. "I've noticed it has helped her with her symmetry and timing. She spends equal time on both her legs, rather than avoiding putting weight on her affected side. The metronome has helped her discontinue use of her cane more confidently."

Yashica Brown, a special education teacher at McLeod Elementary in Jackson, said she had to laugh when she learned about her mother's new therapy. "My mom doesn't have any rhythm," she said. "But she is getting it right (with the metronome). That's a first. And she is on the beat with everything at church."

Brown said she has enjoyed watching her mother reclaim her go-getter ways. "She gave her testimony in church, and she is now ushering. I'm proud of her. I've seen her walk on uneven ground, be able to stand for long periods of time, and she is opening and closing doors with that right hand."

Coates also has a job at Good Shepherd Community Center in Vicksburg. And she's happy to be back in the driver's seat, so she can run her own errands and meet up with card playing pals.

But the best sign that she's almost back to her old self? Brown says it was the spread of food her mom prepared for the holidays. "Last year, she was still sitting in the kitchen and she would tell us what to do, but she was a little frustrated. This time she cooked everything for Thanksgiving and Christmas, and I don't think there is anything she can't cook. She has started fussing and ordering us around, and we said: Momma's back."

For more information about Interactive Metronome training, call 601-936-8888.
Fannie Nelson of Jackson slips her left arm into a robotic exoskeleton, wraps her fingers around a handgrip and begins firing at a flock of chickens flying across a computer screen.

It looks like a scene from a futuristic video arcade, but at play here is the hard work of rehab. Armeo®Spring therapy is helping the 50-year-old regain function in her once paralyzed left arm.

Methodist Rehab recently became one of only six centers in the Southeast — and the only one in Mississippi — to offer the innovative therapy. The system pairs an assistive movement device with a virtual reality training program to help patients with arm paralysis or weakness due to stroke, spinal cord and brain injuries and other neurological disorders.

Methodist Rehab occupational therapist Jenn Sivak said candidates for the therapy must have some active arm movement. “It will not move your arm for you,” she said. But the exoskeleton can make movement much easier by off-loading the weight of the arm. That makes the therapy a good fit for Nelson, who was left with a largely immobile shoulder following an April 2010 stroke.

“Her biggest problem was with elevating her left shoulder or raising her arm above shoulder height,” Sivak said. “Initially, we took some weight off that left arm to make it easier for her to do activities. But within about a month, we were able to take all the weight compensation away.”

Made by the Switzerland-based Hocoma company, the Armeo®Spring system consists of a robotic exoskeleton on wheels that can be easily adjusted to fit either arm, along with a computer monitor and screen on a rolling cart.

“It’s completely mobile so you can take it to therapy rooms or the patient’s room,” said biomedical engineer Charla Howard, a research associate at Methodist Rehab. “And you can use it with or without a wheelchair.”

The system is preloaded with an extensive library of game-like movement exercises. Many mimic everyday activities like cracking eggs over a skillet or cleaning a stove with a sponge. Therapists adjust the parameters of the game to address problems related to a patient’s range of motion, strength or gross motor coordination.

The equipment also detects and tracks even trace amounts of movement and function,
objective measures which may help MRC researchers develop treatment protocols for different types of patients.

Dr. Dobrivoje Stokic, administrative director of research at Methodist Rehab, said purchasing a system that could be used for both patient care and research seemed a good use of grant money recently received from the Ameristar Vicksburg Workplace Campaign and the Craig H. Neilsen Foundation.

“The late Ameristar founder Craig Neilsen was a quadriplegic who knew the importance of supporting promising therapies for people with paralysis,” Dr. Stokic said. “When we saw how the Armeo®Spring can help people whose arms have been severely weakened by spinal cord injury, stroke or brain injury, we knew it would fit well in our program.”

Dr. Stokic said the Armeo®Spring fosters better recovery by focusing on three main principles of rehab. “It allows patients to practice meaningful, life-like activities, to perform high repetitions of specific movements and to be actively involved in finding solutions for tasks presented during therapy,” he said.

Of course, it doesn’t hurt that the therapy is also more entertaining than traditional arm therapies, such as stacking cones or clamping clothespins. “Patients are more engaged and put out more effort,” Howard said. “They see a score and they want to do well.”

“I love it,” Nelson said. “It has some challenging games, and I’m trying to win.”

The system records each patient’s speed and accuracy at varying levels of difficulty. But Nelson keeps track of her progress by the number of activities she can now reclaim—like being able to lift a clothes basket. “The other day she came in and said: ‘I went to the Laundromat;’” Sivak said. “I don’t think other people would have been quite so excited.”

But for Nelson, there’s joy to be found in every act of independence. “It can be rewarding and motivating when you do better,” she said. And she’s grateful for the MRC staff and services that have helped her recover. “These people gave me my life back,” she said. “I didn’t think I was going to make it. I thought I was in doomland, and they brought me back. I came here not able to feed myself, dress myself or walk. And baby when I left here, I was doing all of the above.”

For more information on Armeo®Spring therapy, leave your contact information at 601-364-5567 and a staff member will get in touch with you.

To see a video of Armeo®Spring therapy, go to www.youtube.com/user/MethodistRehabMS.
The Panel:

Adam Booker
The first time Adam tried college, he was an able-bodied 18-year-old who wasn’t ready for the restraints of academic life. “I wasn’t focused on studying or making good grades. I just partied,” he said. In January, he returned to the classroom as a 25-year-old quadriplegic, and this time he’s giving it his all at Hinds Community College in Pearl. “I’m focused now, I want to get this done,” said Adam, who became a resident of Methodist Specialty Care Center in Flowood a year after a car wreck left him paralyzed from the neck down at age 19. “My ultimate goal is to get my master’s degree in psychology.”

Robert Cassidy
Robert’s life changed in a split second during a high school football game. A sophomore wide receiver and free safety for Ruleville Central High, Robert suffered a devastating accident in the second game of the season that left him with broken C5 and C6 vertebrae. “I spent a couple of pretty intense months at Methodist Rehab, where I really had a positive rehab experience. The nurses, therapists and staff all worked hard to help me get to where I could go back to school. I graduated high school with my class in 2008, then went right on to Delta State that fall.”

Will Graves
Will was injured in a car accident in 2008 while a junior at West Jones High School in Laurel. After spending two months in Methodist Rehab, the bright student quickly caught up with the rest of his class and in his senior year, he had dual enrollment at both West Jones and Jones County Junior College. He also took summer classes before heading to the JCJC campus. “Those were all online classes, so I wasn’t actually on campus until the fall semester,” Will said.
Adjusting to college life can be a challenge for people with disabilities. So we asked five wheelchair users to share how they adapted to life on campus. The consensus: If you’ve got the right attitude, most roadblocks can be overcome.

Rebekka Sides Herman
A Greenville native, Rebekka was just a freshman in high school when she was paralyzed in a car accident that broke her T9 and T10 vertebrae and put her in a wheelchair. “I have never wanted to be treated differently, and I wouldn’t be as independent as I am today if I didn’t push myself to go to college.” With an undergraduate degree in Speech and Language Pathology from Mississippi University for Women and a master’s degree from Jackson State University in Communicative Disorders, Rebekka is working and adjusting to married life.

Lawerance Williams
When he was a senior at Murrah High School in Jackson, Lawerance damaged his spinal cord during football practice. With an injured T4 vertebra, Lawerance now uses a wheelchair, but he didn’t find that to be much of an obstacle when he went to Mississippi State University in Starkville. After a year at MSU, where he majored in computer engineering, Williams transferred to Jackson State University. He plans to go back to MSU in the fall.
Each of you began college in a wheelchair. What are some of the challenges you faced?

Adam: My challenge is just getting there. I have my own van, and I hired an assistant, Mary Boyd, who drives me to class and takes my notes. She also helps when I take tests. We go to another room, and I tell her the answers.

Robert: Opening doors turned out to be my biggest challenge. Getting around campus was a little difficult, but not as hard as I imagined it would be. I noticed right off the bat some of the crosswalks lacked ramps. There was one crosswalk in particular that had no ramp, so I had to go way out of my way, which always made me late for class. I went to the administration of the college and explained the situation. The next week, they not only broke that particular curb down and installed a ramp, but they made sure there were ramps all over campus. It was great knowing they took my situation seriously.

Will: The biggest challenge was just getting around. I had to learn my surroundings, and learn which areas were accessible. There were a few places where I had to take the long way around just to gain access into a building. But the administration was great. They knew in advance that I was coming and what my limitations are, and they did a lot of work to prepare for my arrival on campus. I also have the challenge of finding someone who is a good note-taker in each class, so I can borrow their notes.

Lawerence: My biggest challenge has been making myself get up and go to class! For the most part, MSU’s campus is quite accessible. If I did run across an obstacle, they’d correct it right away.

Rebekka: I went my first semester to Delta State, just to get used to being in a college environment. I transferred to Mississippi University for Women spring semester 2006, and I wanted to be sure I could handle it before I moved three hours from home. Not every building had a handicapped parking spot nearby, and the dorm wasn’t accessible. They had to build a ramp. My dorm at the “W” was fine, but the next year they changed it to a men’s dorm, and I ended up finding an apartment off campus. The “W” campus is beautiful, but it’s old, and it’s not particularly accessible. I had to change some classes from the second floor to the first because some of the buildings don’t have elevators. That was just another thing I had to deal with.

What were some of the things you did at Methodist Rehab that prepared you to go to college?

Will: I worked a lot with George Gober, a research and technology associate for Methodist Rehab’s adaptive computing lab. That made all the difference. He introduced me to Dragon speech recognition software, which allows the user to control the digital world by voice, including creating documents, sending mail, controlling applications, and navigating the web, all by talking. I use the computer to do so much, and Dragon has made it possible for me to write term papers and so much more.

Lawerance: I actually interned with Mr. Gober the summer after graduation. He taught me a lot about how a computer works, and that has helped me with my major. I felt I was prepared to go away to college after my time in rehab at MRC because they pushed me to do as much as I could on my own while I was there, and that was a good thing.
What are your plans for the future?

Adam: I want to work with people in drug rehabilitation or work for a hospital spinal cord injury program. I love dealing with other people’s problems. It makes me feel good to know I’ve helped them with something that has been bothering them.

Robert: I want to use my degree in business to possibly open a restaurant. I really just want to create jobs in the Delta, which is sorely needed. It’s important to me to start at home, then see where I can go!

Will: After completing my associates degree at JCJC, I am planning on transferring to Ole Miss. We are already looking at apartments there and just getting an idea of how it will work for me. I am hoping to be driving before I go to Oxford. I also plan on going on to law school when I graduate.

Lawerance: After I finish my bachelor’s degree in computer engineering, I plan on continuing my education by going to law school.

Rebekka: Now that I have my master’s degree, I got a job as a speech therapist in a Greenville nursing home. I’m also still getting used to being married.

Has your disability hindered you from pursuing your dreams?

Adam: So far, no. But you never know what obstacles are in the future. It’s a shame you can’t appreciate how easy it is for you when you’ve got it easy. I was set up for a four-year college experience (before my injury), and I blew it. Now when it’s a bit harder, I’m ready to work for it. I think my injury will help people in the field I’m going in. They can look at me and say: He knows how to deal with difficult things in life.

Robert: If people use their disabilities as an excuse, they’re missing out. The sky’s the limit for those who choose to help themselves. Don’t sell yourself short! Everything may not be the way I want it to be, but I simply adjust. In a wheelchair, you have to find the things that fit your abilities. In the “real world,” not everything is geared towards people with disabilities. Get used to it and move on!

Will: Not at all. I have chosen to major in history because I like it. I was minoring in business, but after two semesters of business classes, I learned it was not for me. So I changed my minor to English, and I believe that will help me in my pursuit of a law degree. I have challenges, of course, but who doesn’t? I have special adaptive devices that help me with everyday things like eating and such, and otherwise, I’m just like everyone else.

Lawerance: My accident actually helped me discover what I want to do. The time I spent interning at Methodist Rehab with Mr. Gober helped me to realize that I really have a love for computer technology. The more I’m in school, the more I realize that I can go beyond that and into law. There’s nothing I can’t do if I set my mind to it.

Rebekka: I never really set goals for myself. I just decided early on to do the best I can today. I went to school thinking I’d take one semester at a time and see how it goes. It has definitely not been easy. For someone in a wheelchair, it’s not just about academics. The physical challenges affect the mental aspects. But I made it through both undergraduate and graduate school and now I can take on the world!
Methodist Rehab helps people get back into the academic and working world with a variety of services. Here’s a round-up of several programs which provide valuable resources for the college-bound.

**Adaptive Computing**  “You’d be hard-pressed to think you can go to college nowadays without using a computer,” says George Gober, a research and assistive technology associate for Methodist Rehab’s adaptive computing lab. “When you’re not as mobile, you have to do more on the computer. Everyone we see has a unique set of circumstances. Our adaptive computing program matches disabled computer users with the best equipment and software to meet their needs.”

For instance, people who can’t use their hands to operate a computer often turn to alternative hardware input devices, such as a mouth-operated joystick. Another option is adaptive voice recognition software programs that allow text input through dictation.

“Paraplegics typically must follow ergonomic protocols such as correct work-surface height, monitor height, proper angles of keyboard and pointing device input,” Gober says. “This is important since they must constantly deal with fatigue and repetitive stress injuries due to the physical demands of self-propulsion around the campus.”

For more information, call 601-364-3517.

**Assistive Technology Clinic**  As coordinator for Methodist Rehab’s Assistive Technology (AT) Clinic, physical therapist Allison Fracchia is the go-to resource for those who need help choosing the right wheelchair for college life.

“I feel like one of my responsibilities is to educate people about the options and discuss the pros and cons,” said Fracchia, a certified AT practitioner and a seating and mobility specialist. “We start with an in-depth analysis of their physical abilities, medical issues and environmental concerns. Then we provide an unbiased opinion about the best manual or power wheelchair to meet their needs. People who are new to the wheelchair market often have no idea how many innovations have been introduced in the last 10 years. We have the expertise to recommend the best types of tires, casters, motors and seating and suspension systems to address all their mobility concerns.”

For more information, call 601-364-3533.

**Driver Retraining Program.**  Getting around some college campuses requires driving, and Methodist Rehab has a program to help people with disabilities get back behind the wheel. Participants undergo a comprehensive evaluation of cognition, perception and motor response, as well as an in-vehicle assessment in various traffic situations. And for those who need adaptive equipment such as hand controls or left-foot accelerators, staff at Methodist Rehab can recommend equipment and offer training on how to use it.

For information, call 601-936-8889.

**Low Vision Rehabilitation Program**  This program addresses deficits such as blurred vision, double vision and blind spots. Through compensation strategies and sessions on devices such as the Dynavision 2000 Light Training Board, patients can learn to overcome problems with peripheral attention, gaze shifting, scanning and other forms of visual function.

For information, call 601-936-8889.
Neuropsychological Testing and Counseling.  
Clea Evans, director of Methodist Rehab’s neuropsychology department, recommends that people with a traumatic brain injury diagnosis undergo cognitive testing before they head to college.

‘Having a full evaluation can help you identify what kind of services you may need and document that you are entitled to certain accommodations,” she said. “For instance, you might need extra time or a quiet place to take tests (including college entrance exams) because you have attention problems. Or you might need help with note-taking. We can offer strategies based on each person’s strengths and weaknesses and tailor a list of recommendations to compensate for difficulties post-injury.”

Evans says her department also can offer support for what can be an emotionally challenging transition. “Some students are more at risk for depression, especially if they are going to a college where they don’t know a lot of people. At home, they may have had a very supportive family and being on their own is a wake-up call. In that case, it can be helpful to have weekly or monthly counseling sessions — just somebody to touch base with that can help them identify and solve problems. We offer those services, and we’re also happy to help them find a counselor on campus.”

For information, call 601-364-3448.

Quest Program. Methodist Rehab’s Quest program, a community reintegration program for people with brain injuries and some spinal cord injuries, helps ease the transition to high school and college with a variety of services. Speech therapist Cassie Means says in addition to assessing speech, language and cognitive skills, Quest helps participants develop compensatory strategies for memory, organization, reading and listening — all vital to being a successful student. “There are some challenges that our patients experience and have to overcome in order to be successful in the classroom,” she said. Quest staff also works with area schools and colleges to assess the student’s environment and recommend accommodations.

For information, call 601-713-1550.

Other Resources
Mississippi Department of Rehabilitative Services
http://www.mdrs.state.ms.us
(800) 443-1000

AHEAD: Association on Higher Education and Disability
http://www.ahead.org
(704) 947-7779

ENTRY POINT! is a program of the American Association for the Advancement of Science (AAAS) offering outstanding internship opportunities for students with apparent and non-apparent disabilities in science, engineering, mathematics, computer science and some fields of business.
http://ehrweb.aaas.org/entrypoint/
(202) 326-6649

Americans with Disabilities Act (Department of Justice)
http://www.ada.gov/
800-514-0301
The moment he clinched a spot in the 2012 Paralympics, wheelchair fencer Ryan Estep let loose a celebratory scream. Then came a blubbery bear hug with Ginny Boydston, the Methodist Rehab therapeutic recreation director who introduced Estep to the sport.

“Ginny and I are both big cry babies, and I knew it was coming” said the 24-year-old from Florence. “If we hadn’t head-butted each other by accident, I think we would have been crying for 10 minutes.”

One can only hope that the waterworks will be under control when the Paralympics begin on Aug. 29 in London. Otherwise, things could get pretty deep in the Methodist Rehab camp.

In addition to Estep, three other athletes with MRC ties are on a quest to join the best of the best at the Olympic-style contest for physically disabled athletes.

As of press time, the Paralympics dreams of wheelchair fencers Joey Brinson of Okolona and Sonia Fogal of Jackson were resting on how well they would perform at world competitions this winter. Like Estep, both are members of the U.S. Wheelchair Fencing Team and Methodist Rehab’s Blade Rollers squad.

Above-the-knee amputee Shaquille Vance of Houston, Miss., won’t know his fate until the U.S. Paralympics Track & Field team is officially named in June. But he stands a good chance to be in the starting blocks come August. He was recently chosen to be among the 44 athletes representing Team USA at the November Parapan American Games in Guadalajara, Mexico.

All four of the Paralympics hopefuls have worked hard to join the estimated 4,200 elite athletes who will invade London for 11 days of competition. And they are thankful that Methodist Rehab has helped make their journey a bit easier to bear.

MRC’s therapeutic recreation program has provided training space, equipment and underwritten travel expenses for the wheelchair fencers, as well as hosted a U.S. Wheelchair Fencing training camp. And Methodist Orthotics & Prosthetics has been a resource for equipment, fittings and logistical support for Vance.

Playing pit crew for the athletes has taken some MRC staff beyond their typical work demands. But in a sense, the duties are an inherent part of the rehab mission — to meet people where they are and take them as far as they can go.

“We strongly believed there was more to Shaquille’s rehabilitation process than helping him walk again,” said Jennifer Long, manager of Methodist Rehab’s orthotics and prosthetics clinic in Flowood. “He was an athlete before his injury, and to be fully rehabilitated, we wanted him to be an athlete again.”

It’s a credo at the heart of Boydston’s adaptive sports program, as well. On a display outside her office are the words of
tennis great Arthur Ashe: Start where you are. Use what you have. Do what you can.

The result, as Estep will attest, can be sweet reward for the athlete and all who help him accomplish his goals.

“I was so happy,” he said of earning the gold medal that guaranteed his spot in the Paralympics. “Everybody rushed up, and that was one of the best parts. It was such a good moment because you realize nobody knows how much work you’ve put into it except your team.”

Introducing the FANTASTIC 4

RYAN ESTEP

SHAQUILE VAANCE

SONIA FOGAL

JOEY BRINSON

Ways & Means 31
“I don’t want to be just one of the better people in the U.S – I want to be the best in the world. And the only way that is going to happen is through a lot of sacrifice and dedication.”
Estep has enjoyed a meteoric rise in rankings since he blazed onto the wheelchair fencing scene just two years ago. In August, he earned a berth in the 2012 Paralympics by winning gold in epee at the Americas Zonal Championships in Brazil. Now, he’s the top wheelchair fencer in the United States and is ranked No.10 in the world.

Estep was a standout athlete at Florence High School before a 2005 car accident paralyzed him from the waist down. Still, his first attempt at adaptive sports didn’t go well.

“I wheeled around playing wheelchair tennis for 15 minutes and said: ‘This is not my sport.’ I told Methodist Rehab therapeutic recreation director Ginny Boydston I wanted to do something where I hit somebody.”

Bashing into others playing sled hockey answered that urge, but the program folded when the local ice park closed. So Estep tried wheelchair fencing on a dare. “Sonia Fogal (then a co-worker) said: I bet I can whip your butt in fencing,” remembers Estep. “I thought ‘no way’ and had to try it. I go to practice, and she beats the crap out of me.”

“I had to keep going until I could compete with her. After the first tournament, I knew I was going to try to turn this into something big just because of the crazy amount of adrenaline it gave me.”

Never laid-back about competition, Estep said he was intense even in his T-ball years. “I was small, but I was the fastest and meanest kid out there,” he said. “In football, I once hit a guy so hard I knocked us both out.”

“I’ve always been the kind of person that if I do something, I want to do my best. I won’t even let a 5-year-old beat me in checkers.”

So Estep was overwrought when he got “dust rolled” by much more experienced fencers during his first international tournament. “I was so mad I didn’t leave my hotel room for like two days,” he said. “I knew I was going to have to work ten times harder than I had been.”

To get ready for the Paralympics, he is working out with a personal trainer, attending team practices, training with elite fencing coaches and studying film of fencing bouts.

“Six days of the week I’m doing something that involves fencing,” he said. “I don’t want to be just one of the better people in the U.S – I want to be the best in the world. And the only way that is going to happen is through a lot of sacrifice and dedication.”

Estep said it helps to have had a team of supporters along the way, starting with Boydston. “You could never say enough about Ginny,” he said. “She is the backbone of MRC recreation. And Blade Rollers coach David Williams is like a second father to me.”

Estep also counts among his crew the many people and organizations that have donated services and underwritten expenses. “I could list a million things that have happened to get me where I’m at,” he said.

Now, he’s focusing on how he can reward all involved by being at his best when he gets to London. “At this point, it’s about improving my distance, timing and decision making. You have to shine under pressure.”
“It’s just a great moment to get on the podium. To hear your national anthem being played, it really sinks in. It’s a feeling that can’t be explained.”
The first Mississippian named to the U.S. Wheelchair Fencing Team, Brinson is a 35-year-old veteran athlete with a healthy respect for the mental aspects of the sport. “Physical chess is a good way to explain it,” he said. “It requires a lot of thinking and strategy. It makes you use your brain.”

Brinson’s most recent victories include a silver medal in Category B Men’s Foil competition and a bronze medal in Category B Men’s Epee competition in the Americas Zonal Championships.

“I was holding back tears,” Brinson said of his emotions during the medal presentation. “It’s just a great moment to get on the podium. To hear your national anthem being played, it really sinks in. It’s a feeling that can’t be explained.”

A former Defensive Back of the Year at Florence High School, Brinson was a multiple year lettermen in football and track. After a car crash left him a paraplegic at the end of his senior year, Brinson found a way to stay active through Methodist Rehab’s therapeutic recreation program. His love of sports led him to try sled hockey, wheelchair racing, snow skiing and other adaptive sports. But wheelchair fencing has won him the most accolades.

A charter member of Methodist Rehab’s Blade Rollers fencing team, Brinson is proud to be competing for the United States in venues around the world. “I’m a wheelchair athlete, and that’s the goal of a lot of athletes — to represent their country.”

Brinson’s experience against elite athletes, both in sled hockey and fencing, has taught him some important lessons. “You’ve got to earn respect in international competition,” he said. “The people we go against are so good — they never make a mistake. My first World Cup was in Montreal in 2009. The speed and technique of the fencer was so much better than I was at that point, it made me want to learn to be better. I didn’t like getting my butt whipped.”

Since then Brinson has focused on improving his technique and mindset. “I had to learn to be patient … that it’s more about finesse than power,” he said. “You have to have a goal in mind and be patient to reach that goal.”
“After my accident, I could no longer represent my country in the military. So if I make the U.S. Paralympics team I can still represent my country in a different way.”
Fogal, 44, of Jackson is an Army veteran who never let a paralyzing car wreck at age 29 lessen her competitive drive.

The lifelong sports enthusiast tried various sports, and finally found her niche when she took up fencing. “I’m an adrenaline junkie,” she said. “So I immediately liked the close contact and speed of it.”

Since joining Methodist Rehab’s Blade Rollers, Fogal has become a recognizable name in national competition and was invited to be a member of the U.S. Wheelchair Fencing team in 2010. In Mississippi, she earned Female Athlete of the Year in Fencing for the 2009 and 2011 State Games.

Fogal says it takes both physical and mental prowess to improve one’s ranking in the competitive world of international wheelchair fencing.

“The millisecond you see your opponent make a mistake, you have to be quick enough to react to it and use it to your benefit,” she says. “It’s a psychological thing. I can recognize it, but am I fast enough? I have little demons that go through my mind.”

The chance to compete in London has had Fogal working hard to exorcise those demons. She wants nothing more than to take a place on the medal stand and hear “The Star Spangled Banner” being played.

“I want to bring home a gosh-darn medal,” she said. “After my accident, I could no longer represent my country in the military. So if I make the U.S. Paralympics team, I can still represent my country in a different way.”

But whatever happens in the coming months, she’s thrilled to have been part of the celebration when her U.S. teammates won medals at the Americas Zonal Championships in Brazil.

“All you could see was American flags, and just like when I was in the military, I got to salute the flag. And I was proud and happy for my friends and teammates. I turned and saluted the American flag and all the pride I have being a member of the U.S. Wheelchair Fencing team and an American shined through.”
“Now, I’ve got something to do until I’m 30. It’s a good opportunity for me to get out and explore the world.”
Just one day after taking his first test run on an engineered-for-speed “cheetah” foot, Shaquille Vance was wowing the crowds at the 2010 Endeavor Games. He won the 100 meters, 200 meters and shot put.

He hasn’t slowed down since.

This November, the 20-year-old from Houston, Miss. is slated to compete in the U.S. Parapan American Games in Guadalajara, Mexico. He’s also a good bet to be officially named to U.S. Track & Field’s Paralympics team in June.

A natural athlete who has excelled in a variety of sports, Vance was playing pick-up football when he sustained the injury that led to the above-the-knee amputation of his right leg.

Realizing Vance’s athletic potential, Methodist Orthotics & Prosthetics staff fitted Vance with a “cheetah” foot in 2010. He has been showcasing his athletic prowess at track and field meets across the nation ever since.

In April, he set a new 200-meter American record in his division. And his shot put performance in the National Junior Disability Championships earned him the title of 2010 Boys Field Athlete of the Year. Since February, he has been one of only two athletes with prosthetic limbs readying for the Paralympics at the Chula Vista Olympic Training Center in California.

“We train six days a week,” said Vance, who is set to compete in the 100-meters, 200-meters, shot put and discus. “This has really been a blessing for me, and I wouldn’t be where I am right now without Methodist Rehab. They did a lot for me.”

Vance said he’ll never forget the first day he put on a “cheetah” foot and was able to run again. Now, he’s anticipating the high of competing in the Paralympics and all the places a career in track and field could take him.

“Now, I’ve got something to do until I’m 30. It’s a good opportunity for me to get out and explore the world,” he said.

But no matter how far he travels, Vance says his mind will be on his support crew in Mississippi. “My mom, Mable Vance, is my good luck charm. I talk to her before every race.”
Throughout her more than 30 years as Methodist Rehab's therapeutic recreation director, Boydston has been a passionate supporter of adaptive sports. And her leadership has helped many local athletes become national and international contenders in a variety of sports.

But it's her success with Methodist Rehab's Blade Rollers – now the largest wheelchair fencing team in the nation – that earned her the honor of being named the U.S. Wheelchair Fencing team leader.

Her duties are a maddening mix of managing scheduling, deadlines, funding, training camps and travel logistics, but she wouldn't have it any other way.

“It was a dream come true and a career high,” she says of joining the U.S. team. “When this fencing business started, I didn’t understand it at all. But I loved the challenge of learning the rules and regulations, applying them to various situations, working with the pit crew during tournaments and navigating our fencers through the international level of competition, travel and worldwide exposure. The ultimate goal is the 2012 Paralympics.”

Since 2009, David Williams of Ridgeland has been a coach for Methodist Rehab's Blade Rollers wheelchair fencing team and in the last year has taken on the duty of preparing the squad's elite fencers for Paralympics competition. A fencer for 33 years and a fencing teacher for 30, he is a referee in foil, epee and saber and also the commissioner of fencing for the State Games of Mississippi. He has earned the Prevost d'Armes accreditation, the second step toward the fencing master degree.

The Mississippi Paralysis Association
A long-time supporter of Methodist Rehab's adaptive sports program, MPA serves as an ongoing resource for travel funding and equipment for members of the Blade Rollers wheelchair fencing team.

Ameristar Casino Vicksburg and the Craig H. Neilsen Foundation
It was the generosity of Ameristar's workplace giving program and the foundation begun by the late casino founder Craig H. Neilsen that helped bring wheelchair fencing to Mississippi in 2006. Funding from the two entities helped Methodist Rehab purchase the specialized wheelchairs and equipment to launch a fencing program and provide wheelchair fencing clinics throughout the state.
Methodist Rehab’s O&P division provided Shaquille Vance with his first made-for-speed “cheetah” foot, and sponsored Vance in his first national competition. Now, staff members help the young athlete with everything from equipment tune-ups to travel advice.

“Helping Shaquille is part of our long-term goal to be a comprehensive facility for all people with limb loss — including athletes with Paralympics potential,” said Jennifer Long, manager of Methodist Orthotics & Prosthetics in Flowood. “His talent made him a perfect candidate for pursuing this vision with us.”

Össur Americas, the manufacturer of the “cheetah” foot that Vance wears in competition, also deserves special thanks for their support, say Methodist O&P staff.

Want to be a Paralympics Partner?

Like all amateur athletes, Methodist Rehab’s Paralympics hopefuls often struggle to meet the training, equipment and travel costs that come with competing on the international level.

If you would like to help, send contributions to Methodist Rehab’s adaptive sports program c/o Ginny Boydston, Paralympics Fund, 1350 East Woodrow Wilson, Jackson, MS 39216.

Lessons learned on the road to London

1. When transporting a golf bag full of swords through the airport, do not refer to the equipment as your weapons. This excites security personnel.

2. You do not need your whole closet of clothes for three days of track and field competition. But you will need your spikes and running shoes, so make sure they make it into your bag.

3. Don’t assume the City of Light doesn’t have a dark side. While cruising down the sidewalks of Paris, it is possible to roll through THREE piles of dog droppings and get splashed by a car and pooped on by a bird – all in one day. C’est la vie, indeed!

4. Sometimes your equipment will have a travel itinerary of its own. So try not to be too miffed that the only borrowed fencing gear that will fit you is a girl’s – and the mask smells like stinky cheese.
“I’m too young to give up”

Paralyzed father pushes hard to regain ability to care for family
Like any parents with toddlers, John Adam and Amanda Long spend a lot of time trying to keep up with their lively sons, Tristan, 2, and Hayden Ace, almost 1. John Adam says his desire to be a hands-on dad pushed him to get all he could out of therapy after he was paralyzed in a car accident.
As he lay trapped in the wreckage of an overturned Volkswagen Beetle, emergency room nurse John Adam Long could tell something was “bad wrong.”

He thought of his wife, Amanda, seven months pregnant with their second son. And of his firstborn, Tristan, whose first birthday was just two days away. Then he asked someone to call his home.

“He got on the phone and told me he thought he was going to die,” Amanda said. “He told me he loved me and to take care of our baby.”

Amanda arrived at the wreck scene in time to follow John Adam’s ambulance to Winston Medical Center in Louisville, where staff prepped him for a helicopter flight to the University of Mississippi Medical Center (UMMC) in Jackson.

UMMC surgeons pieced together the shattered vertebrae in John Adam’s neck and upper back with metal plates and cadaver bones. In the days that followed, everything was about the 30-year-old’s survival.

“We were so preoccupied, it was hard to think about anything else,” Amanda said.

But as Amanda’s due date got closer, their thoughts turned to getting John Adam ready for fatherhood as a quadruplegic. And the hunt was on for a rehab center where he could recover as much ability as possible.

“We had somebody do research on the places that were accredited in spinal cord injury rehabilitation,” Amanda said. “We found Methodist Rehab was the only one in the state. We pushed really hard to go there.”

“I knew what I needed was to work hard,” John Adam said. But he admits to some trepidation when he first rolled into the therapy gym on Methodist Rehab’s spinal cord injury floor on Oct. 20, 2010. “I was so scared. You hear horror stories that they are going to kill you. They push and push and push.”

MRC physical therapist Ann Howard said John’s happy-go-lucky personality helped him make the most of therapy. “He seemed like he was accepting of the injury from the beginning. He was really motivated the whole time and never complained.”

John Adam says he didn’t see the point of dwelling on his injury. “I could be dead. Now that I’m here, I’ve just got to get better. I’m too young to give up. My motivation is taking care of my family.”

As the time neared for his wife’s scheduled Nov. 26 C-section, John Adam asked MRC occupational therapist Bridgett Pelts what he could do to make sure he bonded with his new son. By the next day, she had him trying his hand at feeding, burping and diapering a baby doll. “He loved it,” Pelts said. “He said it almost made him cry.”

Tears did flow on the day of his baby’s birth, as the family celebrated a joyous moment that John Adam feared he might never see. “I got to hold the baby right after he was born. It was a very emotional event. I cried all day. It was kind of hard not staying.”

Back at rehab, John Adam returned to the gym for more daddy-duty practice, this time with a heavier baby doll. Pelts added some weight after she learned that Hayden Ace Long was a hefty 9 pounds, 5 ounces.

The Longs headed home on Nov. 30, and John Adam quickly made use of the skills he had been taught at MRC. “You see how to do stuff in therapy, but you really don’t learn it until you get home and start doing it on your own,” he said. “You can do a lot from a chair; it just takes getting out and trying it.”

As his strength increased, John Adam switched from a heavy power wheelchair to a lightweight manual chair and is now adept at popping wheelies. The attention-getting maneuver is one way his little ones know Daddy means business. “I talked to a couple of guys (in wheelchairs) online about how to do discipline,” he said. “My oldest little boy is at the hard-headed stage. But I can go after him in the wheelchair, and he gets the point.”

“I was nervous at first about how the kids would perceive me,” John Adam adds. But he says his boys have adjusted, especially since he’s now able to get down on the floor and play with them.

These days, Tristan and Hayden also get to see their daddy enjoying an athletic lifestyle. A former triathlete and personal trainer, John Adam is back in the gym big time. “Between therapy and training other people, I exercise about all day long,” he said. “I still consider myself an athlete.”

And like most athletes, John Adam has been craving competition. He has taken up wheelchair road racing and has his sights set on becoming a contender in quad rugby, a wheelchair sport also known as Murder Ball. “That’s the coolest thing about being in a chair — the chance to play quad rugby and maybe go to the Paralympics,” he said.

The next Paralympics — an international sporting event modeled on the Olympics — doesn’t start until Aug. 29, 2012 in London.

Meanwhile, John Adam will continue to focus on getting even stronger — for his family and his future. “I’ve been working pretty hard,” he said. “I came to Methodist Rehab the other day and my therapists said: ‘Oh my God, you’ve done got built.’

“You can do a lot from a chair, it just takes getting out and trying.”

— John Adam Long

As the family celebrated a joyous moment that John Adam feared he might never see.

The next Paralympics — an international sporting event modeled on the Olympics — doesn’t start until Aug. 29, 2012 in London.
A Stroke of Luck

ARTIST, METHODIST REHAB BOTH BENEFIT

by Billy Watkins

Editor's note: reprinted from The Clarion-Ledger August 14, 2011
Mary Ann Gallé of Brandon says it looked like “seeing fireworks at night when they are quiet in the distance and kinda go poof! ... that’s what it felt like was going on inside my head.”

Gallé, 68, was suffering a stroke Dec. 23, 2010, that left her unable to feel anything on her left side.

Paramedics rushed her to Baptist Hospital in Jackson where she spent eight days before undergoing nearly four weeks of therapy at Methodist Rehabilitation Center.

Her turning point on the road to recovery?

“When the therapist asked me what I liked to do, I said ‘I’m an artist. I enjoy painting,’ says Gallé, recovering at home and able to walk with the aid of a cane. “In no time they brought me three canvasses and told me to start painting ... I felt like I had become alive again.”

An accomplished painter who also does sculptures and clay work, Gallé was in luck. “We like to do things like painting to strengthen muscles, considering most folks hold a paint brush the same way they hold a writing pen,” says Kelly Harrington, one of Gallé’s occupational therapists at Methodist. “And it’s always better to have somebody who likes to do artsy things.”

Harrington laughs. “The first day, Mrs. Gallé showed up for therapy dressed in bright colors and fresh flowers stuck all through her hair. I said: ‘This lady is either a bit senile or she is very, very creative.’ Turns out, she is extremely creative. And very thoughtful. Even after that first day, she would always stick two flowers in her hair — one for herself and another for any patient who looked like they might need a pick-me-up.”

Gallé’s giving didn’t stop there. As a “thank you” for her care, she donated 17 of her paintings to be sold via silent auction to help raise money for Methodist’s Wilson Research Foundation. About $1,000 has been raised so far. And, not all the paintings have been sold.

“When she said she wanted to give us some paintings, we thought maybe a couple,” Harrington says. “We had no idea she was going to basically empty her house.”

“As I watched them work with me and other
stroke victims, I just found it fascinating,” Gallé says. “I was right in the middle of a place that was doing research and also helping in the healing and recovery process. Donating the paintings was the only way I knew to give back. I can paint again — maybe not as good as before, but that’s OK, too.”

Gallé and her husband, Warren, learned in 2005 not to hold too tightly to material things. They lost nearly everything — “including 30 years of artwork,” she says — when Hurricane Katrina flooded their Gulfport home. They moved to Brandon shortly after that, where they have a daughter.

But a few pieces of Gallé’s artwork were salvaged because they were stored in a downtown warehouse. “My stuff happened to be in a large bin in the middle of the place,” she says. “Nearly everything else around my paintings were destroyed.”

Some of those paintings were among the ones Gallé donated.

Even though she paints right-handed and her right side was not affected, “I still needed my left hand for balance, holding things ... you don’t just use one hand when you’re painting.”

Harrington required Gallé to paint left-handed for a while.

On her last night at Methodist Rehab, Gallé was asked by Harrington if she would like to paint some spring scenes on a few of the windows on the third floor, near the respiratory therapy area.

Gallé was thrilled. “I started painting everything I could remember seeing in my yard — trees, a squirrel, a butterfly, some banana trees. I really enjoyed that. It was such therapy for me and a big boost in confidence.”
Now?

Through our recent Ways & Means readership survey, many of our “alumni” told us they would like to know what their rehab buddies have been doing since they left the therapy gym. So here’s an inaugural version of our new Where are They Now? column. If you would like to catch us up on your life, send an email to schristens@mmrcrehab.org or call Susan Christensen at 601-364-3334.

A private pilot by her senior year in high school, Felicia Landfair of Pearl became a C5/6 incomplete quadriplegic after she was forced to make an emergency landing during her first cross-country solo flight in 1982. Doctors initially predicted she would never walk again, but Landfair was able to get back on her feet after five months of extensive therapy at Methodist Rehab. “At discharge, I did walk out with the aid of two straight canes,” she said. Landfair never forgot the staff that stood by her side during the frustrating months when she made little progress. “All the therapists were encouraging and young which made it easy at such a tragic time to relate to one another,” she said. And their empathy inspired Landfair to answer what she considers a calling from God to become a physical therapist herself. Today, she practices at the G.V. Sonny Montgomery VA Medical Center in Jackson with Anne Newton, who was one of Landfair’s physical therapists during her time at MRC.

A brain injury patient from April to July 2005, Kim Guillory Stevens of Baton Rouge has been quite busy in the years since a car accident temporarily put her life on hold. She got married, and she graduated from Southeastern University in Hammond, La. with a degree in business management/entrepreneurship. Her mom, Linda Hodges, was so impressed with Kim’s care while at Quest, she joined the staff of the outpatient community reintegration program for brain injury survivors as a receptionist.

Walt Shinault was a 20-year-old cheerleader at the University of Mississippi when a 1980 mini trampoline accident left him a quadriplegic. After five months of therapy at Methodist Rehab, he quickly returned to college at Ole Miss and after graduation began work at Merrill Lynch in Tupelo. “The guy who interviewed me said I was not going to be showed any favoritism,” Shinault said. “He said: ‘If you don’t cut it, you’re out of here.’” Today, Shinault is a financial advisor for about 400 Merrill Lynch customers and a 2010 recipient of the firm’s prestigious David Brady award. Named after a Merrill Lynch employee who lost his life in the World Trade Center on Sept. 11, 2001, the award recognizes those who go above and beyond for their clients.

Joe Marucci was just 26 years old when he was found partially paralyzed and unable to talk following a 2001 stroke. In the years since, Marucci has pursued a number of MRC therapies to improve his ability to walk and communicate, and the reward has been success in the classroom. Today, the Gulfport resident is one class away from a degree in Management Information Systems from the University of Southern Mississippi – an important lesson in perseverance for his 7-year-old son, Will.

Editor’s note: We’ve already completed the gift card drawing for readership survey participants. But you can still tell us what you think about Ways & Means via our online survey. Just go to www.surveymonkey.com/s/MRCmagazinesurvey.
It’s not just patients who breathe easier when respiratory therapist Joe Jenkins is on duty at Methodist Specialty Care Center (MSCC).

He’s the kind of employee that everyone relies on.

“He even helps out other departments when they need a hand,” said Jan Robertson, director of the residential care center for people with severe disabilities. “He works whatever shifts are needed.”

In recognition of his service, Jenkins was selected as MSCC’s first Employee of the Year. But it’s hardly the first time he has been singled out for his dedication.

A 23-year veteran of the Air Force National Guard, Jenkins said he has “seven stacks of ribbons,” including Air Force and Army commendations for his service in the Gulf War.

“I guess it’s just my work ethic,” he said. “What can I say, I’ve been blessed.”

Blessed, too, are the ventilator-dependent patients who know they can depend on Jenkins for their very life’s breath. “I tell them: I’ve got you today. And you know I’m going to do my job.”

A MSCC employee since 2004, Jenkins is known for his attentiveness to the residents’ needs. “His care and compassion don’t stop just because a task is completed,” Robertson said. “He is constantly doing little things for the residents. He always has a smile on his face, and he encourages others to do the same.”

Jenkins said the smile comes from the joy he receives from his work. “I enjoy talking with the patients and trying to give them the best I can give them given the state they are in. When I do something for somebody … that satisfies me. Even if they have a problem that is not respiratory, they know they can tell me.”
In all the 15 years that registered nurse Jennifer Averett has worked for Methodist Rehab, one part of her job has never gotten old.

She still delights in seeing the transformation that’s possible for patients who are recovering from stroke, brain and spinal cord injuries.

“When some patients come here, they are bedridden and can’t do anything for themselves,” she said. “To be able to see them feed themselves, dress themselves and leave walking … it is so rewarding to see what we helped them do.”

Averett’s dedication to her role in that restorative process is one of the reasons she was honored as Clinical Services Employee of the Year, said her supervisor Susan Jefferson, nurse manager for the spinal cord/orthopedic program at MRC.

“She is very, very attentive to her patients,” Jefferson said. “Anything she can do for them, she will. She is very professional and very serious. She is definitely a patient advocate.”

While she has plenty of nurses in her family, Averett said she originally intended to be a biology teacher.

“I worked in a nursing home as an intern and that changed my mind,” she said. “I think nursing is my calling. This December, I will have been in nursing 21 years.”

Although she opted out of a career in teaching, educating others is still a primary concern for Averett. She spends much of her time helping patients and their families learn the skills necessary for a successful return home.

“I feel good when I can teach patients how to take care of themselves in a home setting so they are able to go home rather than to a nursing home,” she said.

And it’s a highlight when those same patients come back for a doctor’s appointment and stop by to visit the nurses’ station. “I love it,” she said. “You think: I remember when he came in on a stretcher and you see the progress.”

In August of 1975, two nurse’s assistants went to the Mississippi Employment Office looking for work. One was sent to a local nursing home, while the other was referred to the recently opened Methodist Rehab Center.

Thirty-six years later, Charlene Taylor is still counting her blessings that she was the one who wound up at MRC. “It was God’s gift,” she said. “I’ve been here ever since.”

Taylor said she immediately loved being part of a staff that was devoted to patient care. “We were a team. Didn’t anybody sit down until everybody was finished working.”

More than three decades later, Taylor is still willing to do whatever it takes to get the job done, said her supervisor Lauren Dukes, nurse manager for the brain injury program at MRC. And that dedication earned Taylor the honor of being named Support Services Employee of the Year.

“She is a great employee because she is very dependable and a hard worker,” Dukes said. “She takes excellent care of her patients.”

Currently a rehab tech on the nursing unit of the brain injury program, Taylor helps patients accomplish the most basic activities of daily living. “I feed them if they need it, turn them in their beds and give them showers,” she said.

Taylor also has done stints with the spinal cord injury program, general rehabilitation and stroke recovery. And she even spent some time helping out in the therapy gym.

Wherever she is assigned, she loves seeing her patients prevail over their injuries. “We had a boy up here recently that I just knew wasn’t going to get better,” she said. “But now he’s talking and eating. I love to see that. I call that rehab.”

During her early years at MRC, Taylor volunteered for the night shift so she could spend more time with her four young daughters. Now she flexes her schedule to accommodate staffing needs — and still manages some family interaction.

Two of her daughters previously worked at MRC, and now her “baby” Carlene Bass is the unit clerk for the brain injury program.
Come on In...
The Therapy’s Fine!
It has helped linebackers overcome knee injuries and a pope rebound from hip surgery.

Now a SwimEx resistance swimming pool is helping Methodist Rehab patients get a head start on their own recoveries.

“The primary advantage of aquatic therapy is the buoyancy of the water,” explained physical therapist Joe Jacobson, director of outpatient services at Methodist Rehab. “The pool has various depths so that we can take off as much as 80 percent of a patient’s body weight. This means people who are still too weak to bear their weight can get in a pool and do a number of exercises that would be too stressful otherwise. Back pain patients, in particular, get a lot of relief from being supported by the water.”

Once patients are strong enough for more challenging activities, the pool provides a unique form of resistance training.

“It has an adjustable current that creates a powerful wall of water that you can work against whether you are swimming or doing therapeutic exercises,” Jacobson said. “We even have an underwater treadmill that patients can run or walk on.”

Housed at Methodist Rehab’s outpatient therapy clinic in Flowood, the pool is used to treat a variety of injuries and illness.

“We see it as a wonderful resource for anyone trying to regain their strength and endurance following knee, hip or shoulder surgery,” said physical therapist Susan Geiger, manager of growth and development for Methodist Rehab’s outpatient services.

“Plus, the massage aspects of being in the water can be particularly helpful for dealing with the pain, stiffness and swelling associated with arthritis and fibromyalgia. And for those working on balance, there’s less fear of falling while they’re in the water.”

For more information on aquatic therapy at Methodist Outpatient Rehabilitation, call 601-936-8888.

Aquatic therapy can be beneficial for:

- back, joint or nerve pain
- arthritis
- fibromyalgia
- multiple sclerosis
- muscular dystrophy
- neuromuscular conditions
- chronic pain
- recovery from orthopedic surgery
At age 91, Elizabeth McIlwain of Jackson has a simple plan for staying young. “Live today like you did yesterday and live tomorrow like you did today,” she said. “And if something happens to your health, go take care of it.”

McIlwain practices what she preaches, which is why she spends a couple of days a week working out on the exercise equipment at Methodist Rehab's east campus in Flowood. She is determined to overcome debilitating back pain that threatened her active lifestyle and put her at risk for life-threatening falls. “I was having so much trouble … I could hardly walk,” she said. But now she feels “so much better,” she is back to baking tray after tray of her signature tea cakes.

McIlwain suffered from a condition that is common among the elderly, said Dr. Bruce Hirshman, a board certified anesthesiologist and pain management physician at Methodist Pain Management. “She had inflammation of the facet joints, which are the moveable joints of the spine that connect one vertebra to another,” he said. Studies have suggested that 15 percent of chronic low back pain may be due to facet joint pain.

Many elderly endure the discomfort believing it’s just a consequence of aging. But Dr. Hirshman said even patients in their 80s and 90s can benefit from pain management strategies.

Back pain doesn’t have to be part of aging
Successful therapies abound even for the elderly
In McIlwain’s case, Dr. Hirshman injected anesthetic and anti-inflammatory medications into the facet joint to block the pain. “He found where the sore spot was and he really fixed it” she said. “Now it just hurts a little bit when I overdo.”

Dr. Hirshman said injection therapies are safe for the elderly unless there are severe medical problems complicating their care. “Occasionally, we can even totally eliminate their pain,” he said. “I just discharged a patient who is 88, and he told me he takes no pain medications now — not even an aspirin.”

Once McIlwain felt better, Dr. Hirshman recommended she start therapy to address another issue that was holding her back. “She had unsteadiness and was falling,” he said.

So he referred her to Susan Geiger, a physical therapist at Methodist Outpatient Rehabilitation who has special training in vestibular rehabilitation and therapies to improve balance.

Geiger said the vestibular system includes parts of the inner ear and brain that help control balance and eye movement. While the system can contribute to balance problems, it wasn’t the culprit in McIlwain’s case.

“She had normal balance problems related to weakness in her trunk and lower extremities,” Geiger said. “When she walked, she couldn’t keep a straight line. She would touch the wall or a person for balance.”

Such unsteadiness can put the elderly at risk for falls, which are a leading cause of injury in the geriatric population. “Think of all the bad problems you can have from falls — broken bones and head injuries,” Geiger said.

To better McIlwain’s balance, Geiger put her on a regimen to improve her strength, endurance and agility. “And I haven’t had a fall since seeing Susan,” McIlwain said.

Hirshman and Geiger said McIlwain’s determination to get better played a major role in her recovery.

“She does not take her age as an excuse to sit down and do nothing,” Geiger said. “She wants to have quality of life all the way through. If you’re motivated, you’re more likely to improve.”

McIlwain said her advice to others is: Don’t ever let yourself get old. And as long as she’s able, she plans to live as independently as possible.

“I may be 91,” she said, “but I don’t feel it.”
Have Pain? We’ll travel

It has been decades since the doctor would come to your home to treat you for your current malady. The convenience of not having to travel long distances for specialized care, especially when not feeling up to par, is being appreciated again with the development of local community based clinics which are being conducted by physicians who are part of the Methodist Pain Management team.

“Local doctors have developed a partnership with us because they recognize what a hardship it can be for pain patients to seek treatment away from home,” said Alicia Carpenter, outpatient business development coordinator for Methodist Rehab. “Many pain sufferers can’t tolerate the discomfort of driving long distances. In this economy, patients often won’t ask family members to take off time from work to drive them to Jackson.”

In order to evaluate patients, Dr. Bruce Hirshman, a board certified anesthesiologist and pain management specialist, travels to Magee and Kosciusko. He treats a variety of pain complaints. According to Dr. Hirshman, “We most commonly see patients with low back pain. We also treat arm and leg pain including sciatica. Joint pain and muscular imbalances are also frequent complaints.”

Typically, patients can be helped with treatments in their own communities using physical therapy or medication. Hirshman also employs, at times, specialized manipulation techniques to address musculoskeletal problems.
If pain persists, patients are often referred to his office at Methodist Pain Management in Flowood. There, Dr. Hirshman performs interventional strategies, such as pain-blocking injections or techniques that eliminate painful nerves.

Carpenter said about 40 to 60 people a month take advantage of MRC services in the outlying clinics. But not all are pain management patients. Dr. Carmela Osborne, a board certified physiatrist with Methodist Spine & Joint, also sees patients in Magee, Kosciusko and Louisville. In addition to consults and evaluations, one of the most valuable services Dr. Osborne provides at these outlying clinics is electromyography (EMG) and nerve conduction (NCS) testing. The information gathered from the test along with the interpretation of the results by Dr. Osborne, provides great insight to the patient’s primary care physician or referring specialist as they plan the most appropriate treatment programs.

EMG/NCS is used in many clinical and biomedical applications. EMGs are typically used when a physician is trying to determine if nerve injury or a neurological disorder is causing a patient’s muscle weakness or pain. It is commonly used when there is neck or lower back pain which may cause radiating pain to the arm or leg. Also, it helps determine reasons for numbness or weakness in the hands or feet. Common conditions EMG/NCS are used to evaluate include: carpal tunnel syndrome, radiculopathy (pinched nerves in the neck or lower back) and peripheral neuropathies.

Dr. Osborne, who has performed thousands of these procedures says, “The procedure is a two-part process that is minimally painful and involves little risk. The first part utilizes a stimulator which emits static electricity to create activity in the muscle. The second part uses a very fine needle with a tiny recording electrode to record muscle activity.” She pointed out the benefit of doing these test at the clinics by saying, “It is so convenient for the patient for us to travel to them. Plus, I can have the results to their referring physician or specialist within 24 hours.”

By providing the tests at local clinics, Dr. Osborne benefits both patient and physician. “It is so convenient for the patient for us to travel to them,” Dr. Osborne said. “Plus, I can have the results to their referring physician or specialist within 24 hours.”

For information on Methodist Rehab’s community-based pain management services, call Methodist Pain Management at 601-952-0238. For information on EMG services, call Methodist Spine & Joint at 601-936-8801.
Dr. Stokic Q&A

Neuroplasticity as a basis for functional recovery

Interview with Dobrivoje Stokic, MD, DSc, administrative director of research

What is the best way to explain neuroplasticity?
Everyone is familiar with the proverb “use it or lose it.” What underlies this expression has to do with plasticity — the capacity of living organisms to change structure and function as a result of experience. Plasticity is widespread in the central nervous system, both in the brain and the spinal cord. In the language of nerve cells, “use it or lose it” translates to “neurons that fire together, wire together” or vice versa “neurons that fire apart, wire apart.” In other words, connections within the central nervous system are constantly created, removed and recreated, depending upon the input they receive and how they are used.

What is the role of neuroplasticity over the lifespan?
Neuroplasticity is a lifelong process because the brain, at any age, is malleable and can change through experience. It starts at birth and continues, although with decreasing capacity over time. It represents the basis for development of many skills, learning and memory. However, it is believed that excessive neuroplasticity can have negative consequences and lead to neurological disorders, such as hand dystonia (finger cramps) in violin players, or tinnitus, constant ringing in the ears.

When did knowledge on neuroplasticity emerge?
We experienced an explosion of knowledge on neuroplasticity during the Decade of Brain (1990-1999), the research initiative funded by the National Institutes of Health. It spun off many research studies throughout the world. The knowledge eventually trickled down to neurological rehabilitation research and clinical practice.

What is the role of neuroplasticity after central nervous system injury or disease?
Rewiring starts virtually within hours of injury and goes on for several months, if not years. This adaptive plasticity is considered as one, if not the most significant, building block of recovery after brain or spinal cord injury or disease. It is the driving force for development of neurorehabilitation therapies. Although many promising interventions have been studied, the question remains how to harness neuroplasticity to achieve the greatest possible recovery. This is the objective of some of our studies as well. On the other side, neuroplasticity can be maladaptive. Such is the case with chronic pain and autonomic dysreflexia after spinal cord injury, spasticity (muscle stiffness) after stroke, or seizure after brain injury.

Which tenants of neuroplasticity serve as a basis for therapy?
Three tenants: repetition, specificity and motivation. You have to do many repetitions of the same if you want to improve. That’s why we teach and encourage patients to continue their exercises at home. This ties in to the “use it or lose it” analogy. Specificity of training is no less important; if you want to get better at playing a piano, you practice piano, not guitar. Finally, the exercise must engage and motivate the patient, and you accomplish this by making sure the exercise is challenging and of incremental difficulty, but attainable. The patient is motivated by experiencing small but visible improvements.

Did neuroplasticity impact neurorehabilitation research?
It is having a tremendous impact. Neurorehabilitation research finally saw a light in the tunnel. The concept of neuroplasticity provided a foundation for many research studies aimed at developing and evaluating new treatments. These studies largely demonstrated that the intensity matters more than the type of activity that is used in therapy. This is good news because patients who exercise more are likely to have greater recovery regardless of the exact type of exercises done. That is also why doing exercises at home is critical.
Did neuroplasticity bring something new to the development of technology? Many new devices have been developed based on the tenants of neuroplasticity. The most obvious examples are different robots and exoskeletons, such as the Armeo®Spring system that we use for arm exercises with our patients. These systems require high repetitions of very specific tasks of increasing difficulty embedded in computer games. The computer games are entertaining, and this also helps to keep the patient motivated. It is important to mention that these devices should allow the patient to make an error, and then learn how to correct the error to advance. This is critical to helping the brain re-wire. In contrast, a mindless repetitive task, such as making the patient move an arm or leg back and forth, is not helpful and does not engage the therapeutic potential of neuroplasticity.

Are there individual differences in the capacity for neuroplasticity? There seems to be some genetic differences in the production of brain proteins that stimulate neuroplasticity. Some studies in healthy people demonstrated that a certain genetic profile is associated with having less short-term plasticity. The good news is that one recent study presented evidence that the amount of exercise overcomes any genetic differences.

Does any type of medication affect neuroplasticity? Some preliminary studies indicated that certain medication can facilitate development of neuroplasticity when paired with exercise. On the other side, there is a concern that some medication may have a negative effect. In both cases, the jury is still out. Keep in mind that many studies were done in healthy people and examined development of plasticity within minutes or hours after inducing plasticity. We don’t know how the findings translate to patients who receive medication for an extended period of time and exercise for many hours over several weeks. Obviously, much research has yet to be done that will help us harness the recovery potential of plasticity, and we are adding our two cents.

Did the concept of neuroplasticity affect the way treatments are provided? It certainly did here at Methodist Rehab. We currently use several therapies that were developed on the concept of plasticity, some for over a decade now. The examples are weight-supported treadmill gait training, constraint-induced therapy, mirror therapy, and most recently the Armeo exoskeleton. These innovations are a testament of how researchers work closely with clinicians at Methodist. One of our roles in research is to stay on the top of promising new innovations and serve as a conduit for their translation to clinical practice. To help this work, we have dedicated research therapists who are the first to experience and test how innovations can be applied in our settings. Of course, we are blessed to have a receptive group of doctors, nurses and therapists who are eager to apply and tailor promising innovations to the unique patient population served by Methodist Rehab.
Research  

2010-11 Publications & Presentations  
( Methodist Rehab researchers’ names in blue type )

Publications


19. Leis AA, Stokic DS, Petzold A. Glial S100B is elevated in serum across the spectrum of West Nile virus infection. Muscle and Nerve (in press).
Presentations


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