

Small Miracles

PROSTHETIC & ORTHOTIC MAGAZINE

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ALL THE WORLD'S HIS STAGE:



Photo by Mark Garvin



Photo courtesy of Wesley Hilton for Einstein Healthcare Network



Photo by Mark Garvin

Patient Profile

Amputee Michael Toner Returns to Beguile Theatre Audiences

Stepping boldly back onto a theater stage after a hit-and-run accident cost him his leg required the 'willing suspension of disbelief' not only from actor Michael Toner's audiences—but from Toner himself.

There were some leaps of faith necessary on the part of Toner's doctors, nurses, therapists and prosthetists, too, in view of the tight deadline for his recovery from a traumatic, life-threatening injury, amputation surgery, and his adjustment to a new prosthetic limb. For Toner had previously auditioned for and won a leading role in the Walnut Street Theatre production of Eugene O'Neill's "A Moon for the Misbegotten," and he was determined to take the stage in January, as scheduled—only seven months after his grievous injury in June.

Not everyone could have done it. It took courage, faith, determination, and practice—Toner relentlessly pushed himself to prepare

for this role at levels far beyond any role preparation he had ever undertaken. This time, the physical demands of his role almost outweighed the mental—which were also extraordinarily magnified.

Soon after his accident, Toner was reassured by the theatre's artistic director, Bernard Havard, that the role of Phil Hogan was still waiting for him—which motivated him to set the goal and, in partnership with his prosthetist, Jack Lawall, and Moss Rehab therapists Alba Seda-Morales and Drew Lerman, to map out his recovery strategy and tactics within the challenging timeframe allowed by the January premiere.

"They were all wonderful!" he exclaimed. "My physical therapist had come to the theatre to find out what I would have to do before we started rehearsal; my therapy was based on the idea of performing in this play, and the needs of the performance."

It wasn't easy.

From the moment Toner was struck by the hit-and-run driver late on a rainy night, and discovered by a homeless person two hours later, after losing half of his blood, it has been a struggle—and during those initial days, that struggle was life-or-death.

The Long Road Back

Hospitalized for six weeks, Toner remembers that “the first couple of weeks were the worst.” He cites the side effects of heavy sedation—depression, paranoia, a sense of confinement. “I didn’t know if I was going to make it or not—if I was going to be alive after all this. I was really questioning myself.”

Following four surgeries, including the immediate removal of a blood clot from his stomach, the amputation and skin grafts, he returned to the operating room another 10 or 11 times to repair drainage issues and resulting bacterial infection. But even then, Toner saw the bright side: “Most of the procedures were pretty pain-free because I was under anesthesia—and I got to know all the OR nurses because they saw me so many times. The nurses were so great—and the trauma team doctors—they gave me a really positive attitude.”

During the weeks and months that followed, the 69-year-old veteran actor stuck to the program; and through faith, force of will, discipline, and not a little pain and effort, Toner triumphantly achieved his January opening goal.

At first, he admits, “I was pretty self-conscious, remembering that my left leg was a prosthesis, and wondering if I would be able to do the play. I was very nervous about the whole thing.

“My director and I agreed that if I walked straight legged—like an older person who has a limp—it would not only be a more accurate portrayal of the character, because prostheses were not widely used in the time period of the play (the early 1920’s), but I can walk faster and safer and it would make my movements around stage a lot easier.”

The intent was that the audience would hopefully see the character, and not think about the actor having a limp or prosthesis.

“That totally worked out,” says Toner. “The way I was walking just became part of the character, and the key for me was staying in character. It’s the way you blank out going on stage normally, with two legs. You’ve just got to say, ‘I’m not me; I’m this character.’”

By the time he performed on Walnut Street, he was very confident.

But the Walnut Street Theatre run was just the beginning of a nearly four-week, 15 city tour for the production—consisting of 18 performances in less than 30 days.

“It was very demanding, but a wonderful experience overall,” Toner recalls. “My fellow actors—Tony Lawton, Angela Smith, and Jamison Foreman—were just wonderful—as was the stage manager—everyone was so helpful regarding the physical needs I had.”

Unique Challenges

Complicating the issue were the demands of performing on a different stage in every venue: “Most of the stages were either art centers or theaters at big universities, and all were pretty big, with from 800 to 2,000 seats, so the demands were different physically, even though the set was the same.

“Movement on the stage didn’t change,” he explains, “but backstage, I might have long crosses—so I had to walk the stage before each play and make sure I knew what my physical needs were going to be, and practice those long walks. It seemed like half a mile to get from one end of the stage to the other in those 2,000-seat houses!”

Photo courtesy of Wesley Hilton for Einstein Healthcare Network



Although it changed with every city, Toner grew accustomed to changing his preparation for each performance, and recalls that the other actors, stage manager and assistant manager were extraordinarily helpful in all cases.

Surprisingly, the long five- to nine-hour drives between cities took the greatest toll on his endurance. “Although the van was comfortable enough for five of us, just sitting for 2-3 hours at a stretch would cause my amputated leg to hurt. Just getting out and walking would help get rid of the pain; and I had my medication with me, of course.”

The tour took the troupe to locations in Connecticut, New Hampshire, New York, Michigan, Indiana, Pennsylvania, New Jersey, Virginia, North Carolina, and Tennessee—mostly to rural colleges, where the production was sometimes followed by a master class or large group discussion on Eugene O’Neill productions with students who were learning to be actors, or learning various aspects of stagecraft.

Sharing His Craft

Such interaction with drama students was not new to Toner:

“I was always interested in theatre; in fact, at 17 years old I’d take a date to see a play at Walnut Street,” he recalls.

But from his perspective of 43 years as a stage actor, he speaks with authority when he says, “Nobody to this day makes a living in professional theatre—even at top theatres, making top dollar! As an actor, you cannot survive on what you make. You have to work other jobs.”

And Toner did so, in the process nurturing and mentoring numerous others in his field by teaching for 10 years at Community College of Philadelphia as an adjunct faculty member there, teaching English composition, the term paper, public speaking, and ultimately basic acting courses and advanced introduction to theatre, where students rehearsed, performed in, and produced a play, learning all aspects. He taught similar courses at Holy Family College for five years, and at Villanova, he taught modern Irish drama and a course in mono-drama with their graduate school theatre.

“I actually had wonderful experiences teaching,” he reminisces.

(continued on page 6)

AFOs and the Benefits of Sensory Feedback

Noel Rao and Alex Arunin first studied the concept of using AFOs to provide sensory feedback and improve balance in 2006. It is understood that postural sway is decreased in patients with peripheral neuropathies from a single point cane or by lightly touching a stable tabletop. Furthermore, research has shown that stable contact against the forehead, nose and leg have also reduced postural sway. Rao and Arunin sought to determine the effect of proximal contact on the leg on postural sway.

Rao and Arunin's study consisted of 11 patients with peripheral sensory neuropathy. "The subjects underwent a Sensory Organization Test (SOT) in which they stood on a force platform with visual surround, with and without wearing custom leaf spring AFOs, while experiencing four different testing conditions." Two of the four testing conditions were on a static platform with their eyes open and their eyes closed, and the other two testing conditions were on a dynamic platform with their eyes opened and their eyes closed. The sway value increased when the participants eyes were closed and in the dynamic scenarios. Participants who wore an AFO had lower sway values in all four testing conditions. Furthermore, as the difficulty of the test increased the benefit of the AFO became more pronounced.

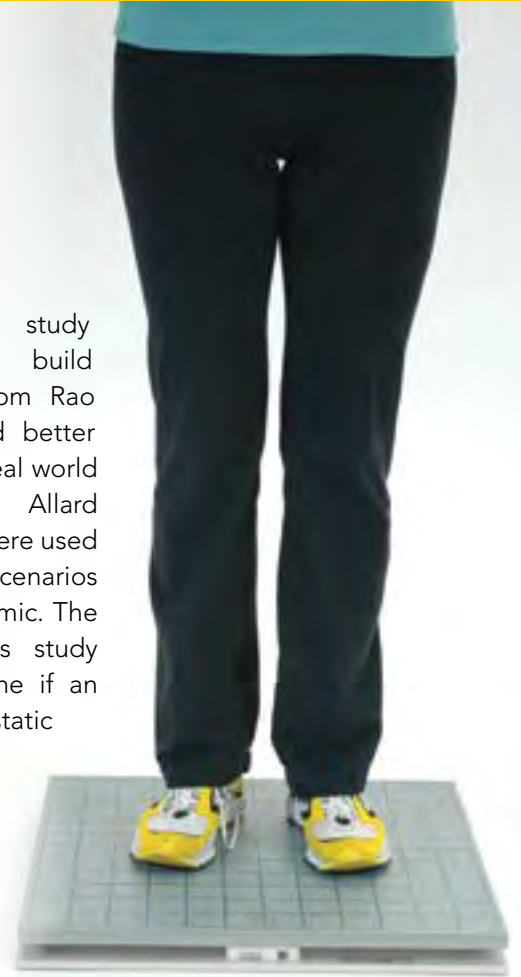
It was important to further analyze these results and determine if balance was improved because of the sensory effect of the AFO or due to the stabilization of the ankle joint. In their second study, the AFO was modified to eliminate the mechanical stabilization of the participants' ankle. The calf section was attached to a footplate with a flexible material, thus the AFO would provide no mechanical support but still provide sensory feedback in the calf. The benefits of the AFO were once again most apparent in the dynamic testing conditions. Equilibrium scores increased by 8 percent with the AFO in the dynamic eyes open scenario and by 80% on average in the group wearing the AFO during the dynamic eyes closed scenario. The study indicated "particularly in cases where visual and somatosensory inputs are compromised, such as low lighting or uneven, unstable surfaces, the auxiliary sensory inputs provided by an AFO may provide benefits to postural stability and retention." ¹

The next study attempted to build on the data from Rao and Arunin and better understand its real world implications. Allard ToeOFF AFOs were used and the tests scenarios were more dynamic. The purpose of this study was to determine if an increase in static balance comes at the cost of sacrificing dynamic balance.

Tests such as a timed up and go (TUG) test, sit to stand, rising on the toes, rapid compensatory stepping, pivot turns and dynamic gait were some of the tests performed. Results in this study were variable. It depended on the individual whether the increased static balance decreased or increased their dynamic balance.

It is evident through the above research that an AFO should be considered as an option to increase a patient's stability through sensory feedback, despite the patient not having any mechanical deficiencies. Providing feedback above the part of the limb that lacks sensation in some cases will help with limb awareness and provide better stability. This must be evaluated on a case-by-case basis. The care team must carefully evaluate the patient and ensure the dynamic stability is not diminished. Orthotists have the ability to trial orthoses on patients to see how they respond. If you have questions always contact your Lawall orthotist for a free consultation.

Increasing stability and promoting safe ambulation are paramount concerns especially in an aging population. Out of the box solutions should be considered because what works for one patient may or may not work for another. 🦋



1. Stevens, Phil, "Bracing the Boomers: Using AFOs to Address Sensory Deficits That Accompany Age, Peripheral Neuropathy, and Diabetes." The O&P Edge. January 2016.

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Photo by Mark Garwin



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"My favorite students were at Community College—they were hungry, they wanted to learn, and they were very imaginative. They came from deprived neighborhoods and they did wonderful work for me!"

From the first, he says, Toner had always wanted to be a writer—and writing and acting were all part of the same package for him, who has written and performed a number of one-man shows.

"I kind of fell into acting in the early 70s, and then—as one writer put it, I dabbled at something until it became my life: that's the way acting has happened for me. I started doing it as moonlighting, but did whatever I could to get back to it—whether directing plays at night if I was working a day job, or acting at night as a guest artist.

"Like other actors, mine has been a stop and start career," he admits, "where I might have to do a full time job. I did five years with the passport service and hated every day of it—I cross-transferred to the VA Hospital and worked in the medical library for eight years and loved that. I also worked for 10 years full-time at the Scheie Eye Institute, running their medical library."

He put himself through college at LaSalle, first through night school—then, after being drafted into the military and serving in Vietnam, he finished at LaSalle and moved on to complete a Master's Degree in Anglo-Irish Literature and Drama while he lived in Ireland for two years—the basis for his current specialization in Irish character roles.

(His gentle brogue still serves him well, even out of character!)

A Philadelphia native, Toner considers himself a citizen of the world, and has spent time not only in Ireland and England, but France, Spain, Italy and Greece, as well.

Looking back over his life and career, and the dramatic turn it has taken so unexpectedly, one wonders if Toner ever thinks about the driver who hit him on that rainy night and left him there, perhaps to die.

"I don't really think about that," he says. "I guess the

person has seen something about me going back on the stage, and knows what they did. I don't know what that driver is thinking. Were they drunk? Were they on a cell phone and didn't see me? I had lost half my blood, I was in shock and I don't remember much.

"I don't have any enmity towards them. They have to live with what they have done," he concludes calmly. "I have a temper, but it's pretty hard to get angry at someone you don't know; and it's just a waste of energy. You want to put your mind on more positive things.

"Now my life has changed in a big way. I have to get used to a certain amount of confinement while being as mobile and active as I can."

Looking to Tomorrow

With one impressive goal—and perhaps the most memorable performances of his lifetime—behind him, Toner is typically not willing to rest on his laurels, however, but is looking forward to the next quantum leap into his future.

"Jack Lawall is taking steps to get me fitted with a new prosthesis with a microprocessor knee!" Toner enthuses. "I'll have to train with that, and learn how to walk with it..."

He's looking forward to meeting with another amputee who wears a C-Leg prosthesis (with microprocessor knee), and is willing to share information and tips from an amputee's perspective.

"Jack Lawall has been wonderful—thoughtful and kind—and he's so funny! He has really been a whiz kid and gotten me ahead of things. He's one of the people who helped get me on the stage in time to be able to do the play, working way in advance of that," says Toner.

"Nurses who had treated me for six weeks came to the theatre and said it was amazing—they thought it would take me at least a year to get on my feet and be walking with a cane—but here I am. I did it in six months because of Jack Lawall and the great folks at Moss Rehab. They all kept pushing me and pushing me to do as much as I could, and get a little

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further, a little more advanced. It worked out great!”

His history as a former middle-distance runner who had continued lifting weights at home and working at a fitness club certainly contributed to his success. But as with any role worth playing, it's the heart and spirit that makes the ultimate difference.



Juan Cave, prosthetist (left) is assisting Jack Lawall, CPO and Michael Godwin, CPO with Mr. Toner's case.

Jack Lawall characterizes Toner as “a gentleman who wanted to get back to life.

“If people want to succeed with a prosthetic, they can do it. It comes from their heart. If they want to feel sorry for themselves, they can do it; but Mr. Toner never felt sorry for himself and took it as a challenge—and just a different chapter of his life.

“During the journey we had a great relationship, and we worked hand in hand through some pitfalls with the prosthetic. For someone who loses a leg,

it's normal to have ups and downs, and such pitfalls are normal. He was just always a joy to work with—and once he got moving, he was going! There was no stopping him!”

Lawall is looking forward to fitting Toner with a microprocessor knee, “which will greatly help him with his stability when he's active. He's an ideal candidate,” says Lawall.

Toner is thankful for the way things have turned out for him. “I'm lucky both to be alive, and to have a wonderful support group in my wife, my family and my friends.” —and also the camaraderie and sense of humor that helped turn his thoughts in a positive direction.

He speaks of future writing projects and potential auditions for upcoming plays; he's planning a leisurely visit to a favorite arts community this summer, and is still intrigued by the possibilities and potential that lie ahead.

“It's later in life for me,” he muses. “I don't know how many years I have left, but I want to live them as fully as possible—doing what I want to do. This is the time to work on MY projects. I would advise people, at whatever stage in their life they may be, don't go out and quit your day job, but follow your bliss whatever way you can. If you really dedicate yourself to doing what you love, eventually you can be doing it full time and even making a living at it.

“Try to do something creative every day,” he recommends. “Even if not necessarily monetary, the rewards are tremendous.” 🦋

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If you would like more information on the Plié 3 microprocessor knee, please make an appointment at any of Lawalls' 16 offices for a free consultation. 🐛



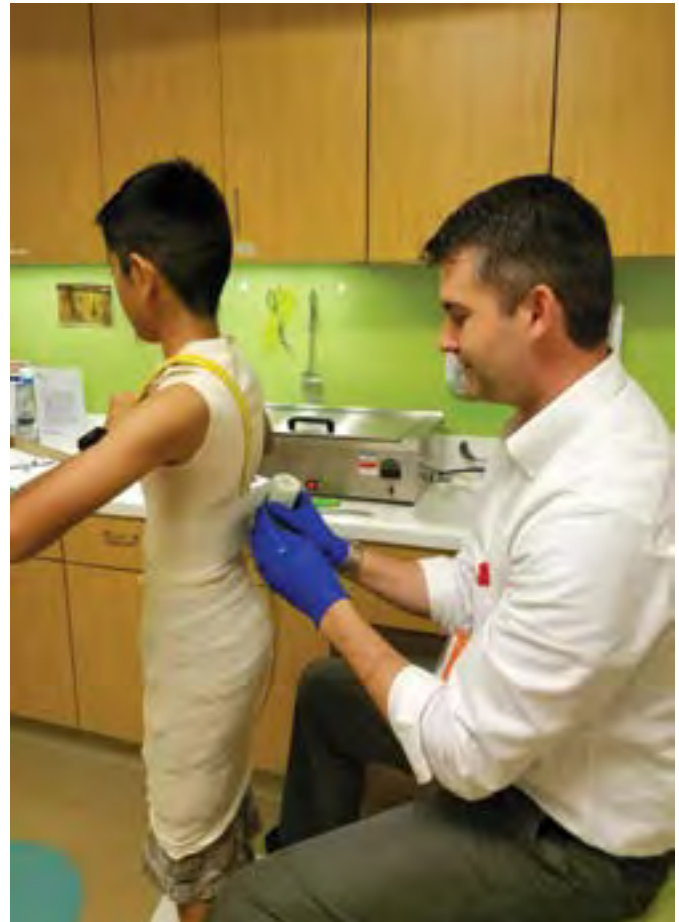
Recent study shows children prefer to wear DAFOs.

Research article "Comparison of 2 Orthotic Approaches in Children With Cerebral Palsy" published online in the APTA journal *Pediatric Physical Therapy*, May 2015



Angelina wearing DAFO FA

Lawall Welcomes Matthew Walle, CO to Florida Team



Lawall P&O of Florida, Inc. is excited to announce Matthew Walle, CO will be joining our team at the Orlando office. Walle is an ABC-certified orthotist and is licensed in the states of Florida and Ohio. He graduated from Northwestern University's Masters Level Certificate Program and has been working as an orthotist for over five years.

"Matt possesses a strong clinical and technical background," said Ruben Barraza, Clinical Director. "He will fit in great with the Lawall team, particularly because of his desire to make patient care his top priority. He enjoys working with his patients as well as his referral sources to maximize his patients' potential. His work ethic and energy will be a great addition to our expanding practice in Orlando!" 🐛

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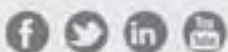
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FitBit Fits Fitness Needs for Those With Disabilities

The FitBit activity tracker has been targeted for healthy individuals seeking to maintain or improve their health. However, perhaps an entire group of potential users may have been overlooked in the marketing of this new technology fad. An argument can be made that this device is applicable and more appropriate for individuals with health issues who are seeking to improve their health. And possibly even used to prove the effectiveness of an orthotic/prosthetic device to insurance companies, constantly seeking quantitative evidence.

The FitBit can be worn on your waist, wrist or ankle and uses an accelerometer to capture gait movement from running to walking. Typical pedometers simply measure movements in one axis; the FitBit uses a 3-axis accelerometer. This provides great accuracy and ability to measure all movements. The gathered data is analyzed and provides information on "frequency, duration, intensity, and patterns of movement to determine your steps taken, distance traveled, calories burned, and sleep quality."²

Several studies have been preformed regarding the accuracy of the FitBit. In 2014, studies reported that the accuracy decreased when the speed of ambulation decreased. Fortunately, more recent and rigorous studies have been preformed and reported that the FitBit is accurate. It maintained a 94-97% accuracy for healthy adults, elderly healthy adults, and adults who suffered

a stroke. Walking speed and placement of the FitBit do matter. Placing the FitBit on the ankle and walking faster than .9mph will increase accuracy of the measurements. Once the walking speed falls below .4 m/s or .89 mph the accuracy significantly declines. "Walking speeds of .9 m/s or less is considered slow, making the accelerometer's high accuracy remarkable."¹

Measuring gait parameters is not a new idea in the orthotic and prosthetic world. The StepWatch is an activity monitor "designed to measure various gait parameters for O&P patients, and has received the attention of the U.S. Department of Veteran Affairs (VA)." The FitBit can be seen as cost effective alternative because the FitBit synchronizes to free online software instead of requiring pricey software like the StepWatch.

Outcome based solutions are becoming more of a priority in the healthcare field. Orthotists and prosthetists can look to this as a tool to help their patients receive the most optimal devices. Comparing before and after measurements of step count distance, cadence and speed can be valuable objective data for gait analysis. The activity level measured by the FitBit can also be used in accessing K-levels. "In 2014, Albert et. Al described a positive relationship between predetermined K-level and Fitbit measurement of activity level in the study cohort, which comprised of people with transfemoral amputations." (Cerutti) 🦋



1. Cerutti, Allie, "Accelerating Outcomes Measurement in Clinical Practice with FitBit." The O&P EDGE. March 2016
2. FitBit, www.help.fitbit.com

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