

TBI NEWS & VIEWS



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Dr. Karen Nolan, research scientist in the Human Performance and Engineering Lab at Kessler Foundation, assists Gary Valinoti with the EksoGT robotic exoskeleton during a recent research study visit.



Photos courtesy of Jody Banks, Kessler staff photographer

PERSONAL PERSPECTIVE: PERSEVERANCE AND THE POWER OF GIVING BACK

By Amanda Thomas, Research Assistant, Human Performance and Engineering Research, Kessler Foundation

A 2016 brain injury changed Gary Valinoti's life, but with expert medical care and rehabilitation, he is now on a new path.

Gary was a senior studying finance at Loyola Maryland when his plans were suddenly interrupted. He developed transverse myelitis, an inflammation of one section of the spinal cord, and weakness in his lower extremities that led to his falling off a balcony. He sustained a severe TBI.

His injuries necessitated multiple craniofacial surgeries and skull reconstruction. Gary was transferred to Kessler Institute for his rehabilitation, which included physical, occupational, speech and cognitive therapies, and treatment for spasticity. After months of inpatient and outpatient care, Gary, who is now living at home with his parents, is able to walk with a cane and continues to increase his independence. However, vision deficits limit his ability to read and walk.

While at Kessler Institute, Gary learned about volunteer opportunities at Kessler Foundation. He has participated in three robotic exoskeleton studies in Human Performance and Engineering Research (HPE), headed by Guang Yue, PhD. The overall goal of HPE research is to improve mobility and motor function and fuel innovative approaches to addressing disabling conditions including multiple sclerosis, cerebral palsy, and brain injury.

As a participant in Dr. Yue's most recent study, funded by the Reitman Foundation, Gary walks in the EksoGT, made by Ekso Bionics.

"Robotic exoskeleton training has the potential for tremendous impact on walking ability, community participation, and quality of life for individuals with TBI," explains Karen Nolan, PhD, the senior research scientist leading the study. "This is just one of the approaches we are using to better understand the unique physical challenges faced by individuals on their journey to recovery and develop more effective rehabilitation therapies. [Our goal is to] improve the lives of individuals with TBI." Other studies focus on the therapeutic benefit of combining physical and mental practice for recovery of hand movement and coordination, and applying virtual reality to balance dysfunction.

Through Kessler's rehabilitation and research, Gary continues on his path to recovery. "I'm grateful for where I am today," he says. His message for survivors of TBI? "Persevere," he advises, "and with rehab, things will get better."

Gary's progress in rehabilitation and research translates to progress in other areas of his life. With the assistance of his mother, he is finishing his finance degree online with Loyola. However, his experiences with his Kessler physician have inspired him to give back. His dream is to become a doctor specializing in medical rehabilitation. As he says, "I want to help people recover from serious illness and injury, so they can find their new paths." ■

To learn more about the Human Performance and Engineering Lab's research, email Kate Goworek at kgoworek@kesslerfoundation.org or call 973.324.3560.

IN THE COMMUNITY

Universal Institute's TRU Center: Vocational Education as Part of Rehabilitation

By Holly Klecha, Research Assistant, Traumatic Brain Injury Research, Kessler Foundation



Tiffany Cabreja,
Vocational Services
Coordinator at Universal
Institute's TRU Center

Many patients recovering from traumatic brain injury (TBI) often have to learn new skills to readjust to an ever-changing workforce. To better prepare its clients, Universal Institute (UI), a clinical, vocational, and residential services provider in Livingston, N.J., created the TRU Vocational Training Center. The TRU Center is dedicated to empowering and enriching the lives of clients with TBI through meaningful, client-centered vocational services. Staff therapists, employment specialists, and direct care team members work with clients to set personal vocational goals, develop new job skills, and improve existing strengths that will be useful in the workforce. The ultimate goal is to provide individuals with the skills and strategies to successfully integrate into the community and gain and maintain competitive employment.

TRU incorporates a variety of different skill sets and aligns them with the needs and interests of the individuals with whom they work. For example,

clients might help research possible social outings, create flyers for events, and even work collaboratively to help write, publish, and disseminate a monthly newsletter for fellow clients. TRU is broken down into five main workstations:

- Reception
- Computer Literacy
- Art Lounge
- Wood Shop
- Library

In addition to these workstations, clients can engage in a variety of other tasks such as conducting an inventory of the pantry or supply closet, sequencing/categorizing specific items in the art lounge, referencing and cataloging the library, and general cleaning and upkeep of the building. Clients who work in the Wood Shop, for example, have restored and mended furniture from other buildings at UI. There is even a weekly meeting of the Event Planning Committee, which creates a business-like structure for clients in the program. One client is chosen weekly to lead the meeting.



Art Lounge workstation

Tiffany Cabreja, vocational services coordinator at UI, explains, "TRU is different in its interdisciplinary approach and integration of vocational-based tasks into a therapeutic setting. Clients can also qualify for our paid work program where they can engage in scheduled, work-based tasks and get paid for an allotted amount of hours. They engage in a variety of integrative projects, events, and even volunteer opportunities." While there is no "typical day" at the TRU Center, clients are encouraged to make the experience their own and foster their creativity and thirst for applicable job skills.

When asked about the core aspect of the program, Tiffany says, "We hope that by supporting our clients in exploring vocational and avocational interests, we can enrich their lives and help them engage in tasks they find meaningful and fulfilling. We focus on the strengths and abilities of our clients with TBI and ultimately allow them to recognize their **TRU** potential. It really comes down to four things: purpose, fulfillment, community re-entry, and community integration." ■



Computer Literacy workstation

EXPERT OUTLOOK

Older Adults with Traumatic Brain Injury: A Quickly Growing Population in Need

By Yelizaveta Adamova, DO



Adults older than 65 are currently the fastest growing group with traumatic brain injury (TBI) in the United States, largely due to falls. Unfortunately, the consequences of TBI tend to be worse in older adults as they have higher risks of medical complications, hospitalization, re-hospitalization, and death due to TBI as compared to younger people. Since older adults tend to have more chronic diseases, they also face more in-hospital complications that may affect their recovery.

Researchers have been more closely examining older adults with TBI, hoping to identify common in-hospital complications and medical conditions that affect older adults with TBI and may even make individuals more vulnerable to the injury. Recent studies show that older adults who sustain a TBI also tend to have conditions such as hypertension, respiratory diseases, fluid imbalances, diabetes,

heart problems, and substance abuse. Additionally, people with depression have a greater risk of sustaining a fall-related TBI. Prior history of stroke and impairments in activities of daily living were also linked with earlier death in older adults with TBI.

This growing body of knowledge should empower medical professionals to improve screening for the risk of falls among older adults. The development of a customized risk assessment plan that considers age, physical and mental health, medical conditions, including existing TBI, and other factors, including lifestyle, would provide useful information for families and caregivers. By raising their awareness of the individual's risk, they can take steps to minimize the probability of falls. Fall prevention has been a public health concern for several years, with effective exercise programs and screening tools now available to help reduce fall risk.

Mental health screenings in older adults are crucial to reduce fall-related TBI. The unique challenge in working with older individuals with TBI is to manage both the TBI itself as well as other specific medical conditions that are common in older adults. As individuals with TBI age, their medical conditions may influence recovery and help predict outcomes. As medical professionals, we need to be more aware of the clinical needs of this rapidly growing population both before and after the injury. ■



Dr. Adamova is a board-certified physical medicine and rehabilitation specialist at Kessler Institute for Rehabilitation in Saddle Brook, N.J. She graduated from Philadelphia College of Osteopathic Medicine in 2012 and has over six years of diverse experience working with individuals with brain injury and other neurological conditions.

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Traumatic Brain Injury Fact Sheets

The Model Systems Knowledge Translation Center had created a collection of factsheets related to living with TBI. Topics include balance problems, relationships, and sleep. These factsheets can be found by visiting msktc.org/tbi/factsheets

IN THIS ISSUE:

- 01** Personal Perspective: Perseverance and the Power of Giving Back
- 02** In the Community: Universal Institute's TRU Center: Vocational Education as Part of Rehabilitation
- 03** Expert Outlook: Older Adults with Traumatic Brain Injury: A Quickly Growing Population in Need

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