

TIRR Foundation—Fall 2020

Leadership Newsletter

Mission Connect—Facts at Your Fingertips

In the spring 2020 leadership newsletter, we introduced TIRR Foundation’s newly created, searchable database of Mission Connect funded research going back ten years. After meeting this goal, we began work on entering the first 13 years of Mission Connect’s research and funding history. The task is complete, and we now have a searchable database for 23 years of Mission Connect. Below are some interesting facts drawn from the ten searchable data points.



Mission Connect has invested more than \$17.1 million in basic science; the science that builds the platform of knowledge on which every drug, therapy, and medical procedure are discovered.

Twenty-three studies on pain have been funded with \$1.8 million by Mission Connect: involving seven institutions and more than 24 researchers.

The institution awarded the most funding from Mission Connect is The University of Texas Health Science Center Houston (UT Health), with more than \$8.8 million in funding. UT Health is followed by The University of Texas Medical Branch in Galveston with \$7.2 million, Baylor College of Medicine with \$4.3 million, and Texas A&M University with \$3 million.

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TEE IT UP with TIRR Update

The 2020 TEE IT Up with TIRR organizing committee came to a unanimous decision to cancel this year’s tournament. Following numerous meetings and discussions, the committee determined it is not possible to hold the event while also ensuring the safety of the participants.

Not to be discouraged; plans for the 2021 tournament are already underway. Golfers can mark their calendar for October 23, 2021, and with this new date also comes a new venue, West-



wood Golf Club, Houston’s second-oldest, private golf club with a design and reputation of challenging all skill levels.

Since the first tournament in

2001, TEE IT UP with TIRR donors have given more than \$1.3 million to support Mission Connect research. From new lifesaving procedures and critical care treatments to quality of life-restoring rehabilitation, golfers and sponsors have been at the side of every researcher working to make these possible.

When October 23, 2021 rolls around, we look forward to gathering together for a fabulous day of golf and to support the labs and scientists within Mission Connect.

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- *Spinal Cord Injury Awareness*
- *New Taste of TIRR*
- *COVID-19 Neurological Complications?*
- *Mission Connect Goes Virtual*

Neurological Implications of COVID-19

Matthew Rasband, PhD, Mission Connect Scientific Director



‘One of the most prominent signs of infection is the loss of smell and taste.’



‘We will all gather together virtually to watch, learn, laugh, share, and cook!’

By now all of us have become armchair experts on COVID-19. We’ve learned about testing, how masks help prevent the spread of the disease, and we’ve watched how the pandemic has upset our work and altered our relationships with friends and family. We know this is mainly a severe respiratory disease with a trifecta of symptoms: cough, shortness of breath, and fever. We also know that for some, infection with COVID-19 can be life threatening. COVID-19 affects the respiratory system because the cells that line our respiratory organs (lungs and nasal cavity) express a protein called ACE2 which functions as a receptor for the virus – thereby allowing it to gain entry into those cells where it can reproduce. As the infection reproduces and spreads, and as the immune system tries to fight the infection, the lungs and airways become inflamed. This is the severe acute respiratory component of the disease. However, the consequences of infection with COVID-19 are not limited to the respiratory system. The infection can also affect the brain and nervous system and other organs. Some hospitals

have reported that at least half of their COVID-19 patients have neurological symptoms.

What kinds of neurological problems can accompany COVID-19? One of the most prominent signs of infection is the loss of smell and taste. This is thought to be a consequence of loss of cells in the olfactory epithelium, which indirectly affects olfactory sensory neurons. Just like the epithelial cells that line our respiratory system, the olfactory epithelial cells affected by COVID-19 express ACE2. Other common neurological symptoms include confusion, headaches, and stroke, to name only a few. Some of these symptoms are thought to be secondary consequences of the immune-system’s attempt to fight off COVID-19. The immune system releases a variety of chemicals throughout the body that, if unregulated, can themselves cause severe neurological damage. The fevers accompanying COVID-19 can also induce seizures and delirium.

Perhaps one of the most worrying neurological problems seen with COVID-19 is

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What...a James Beard Award-Winning Chef in Your Kitchen?

If you are participating in Taste of TIRR on **October 8**, make room in your kitchen for Houston Celebrity Chef, Chris Shepherd. That’s right, Chris Shepherd has stepped forward to lead Taste of TIRR guests through a ZOOM, virtual cooking class that ends with you sitting down to a fabulous meal. A bottle of wine and all the fresh ingredients needed will be delivered or shipped to wherever guests call home during the COVID-19 restrictions. We will all gather together virtually to watch, learn, laugh, share, and cook! If you want

a seat at the Taste of TIRR virtual table, please contact Maudie Werlin.

werlinm@tirrfoundation.org.



M. Rasband, PhD, continued from page 2

stroke. These strokes can occur in patients regardless of age, and even in those with mild or no symptoms. For reasons that are not yet clear, COVID-19 causes the formation of blood clots throughout the body; some researchers hypothesize this is due to COVID-19 affecting the cells that line blood vessels. If blood clots travel to the lungs, they can block blood flow in the lungs causing a pulmonary embolism. If they enter the brain, they can cause an ischemic stroke by blocking blood flow to the brain. Although there are anti-coagulant drugs available, no one recommends treating patients with mild disease to prevent clots. Only people with severe COVID-19 infections, and especially older people with severe disease, may receive anti-coagulant drugs. For the rest of us, we can watch for symptoms including weakness on one side of the body, facial droop, speech impairment, or loss of sensation on one side of the body.

What can you do to reduce the likelihood of infection and experiencing these serious

problems? While we anxiously and patiently wait for a vaccine, there are three very simple things each of us can do to protect ourselves, our family, and our neighbors: 1) wear a mask, 2) practice good personal hygiene by frequently washing your hands, and 3) avoid close contact with anyone you don't live with – physical distance! With these measures in place we don't guarantee that we won't get sick, but we significantly reduce our risk. Furthermore, we model good habits that if practiced by enough of us will suppress transmission of the disease.



Zooming the Science - Mission Connect Holds First Virtual Meeting



On Friday, September 11, Mission Connect held its first monthly meeting via ZOOM. The guest speaker was Trent Watkins, PhD from Baylor College of Medicine. As with all 'firsts,' there was uncertainty surrounding how many participants would join the meeting. At 1:00 pm, 59 researchers and members of their labs logged on to take part. Meeting via Zoom has presented us with an unforeseen opportunity; members of our board and TIRR Family may join the meetings from wherever they are and listen to the presentations. On **Friday, October 9, Kathleen Vincent, MD** from the University of Texas Medical Branch at Galveston, will be the featured speaker. Dr. Vincent, a gynecologist/obstetrician by training, is the principal investigator of a research project funded by Mission Connect's Integrating Perspectives in Spinal Cord Injury Research Award. If you are interested in participating in the next Mission Connect meeting via Zoom, please email Carol Garibay (garibayc@tirrfoundation.org), and she will forward you the link.

'Only people with severe COVID-19 infections, and especially older people with severe disease, may receive anti-coagulant drugs.'

'...members of our board and TIRR Family may join the meetings...'



Kathleen Vincent, MD
Mission Connect Speaker
Friday, October 9, 2020



Moran Camp Xtreme Water Sports Camp Just Like the Waves...the Fun Keeps Coming!



‘Outdoors is where the majority of activities take place’



‘...in 2015, Congress unanimously voted to approve September as National Spinal Cord Injury Awareness month.’

The theme for this year’s water sports camp should be ‘the splashing must go on!’ Not long after registration opened, families began to sign-up, and the roster quickly met capacity. Unlike past camps, this year, there will be a cleaning crew onsite the entire time disinfecting private rooms and all public areas where the families gather. Foodservice has been altered to limit exposure and meals will be packaged in closed containers and handed directly to campers and their families. Families will also be assigned rooms and dining table that will remain theirs throughout the camp. Games allowing for social distancing are planned, such as Bingo, a scavenger hunt,



and decorate your family table. “Outdoors is where the majority of the activities take place. So, with social distancing and wearing a mask, families can be safe and still enjoy their time together,” Camp Director Genny Gomez.

Wear the Green Ribbon!

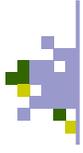
September is Spinal Cord Injury Awareness Month



To increase awareness of spinal cord injury, in 2015, Congress unanimously voted to approve September as National Spinal Cord Injury Awareness month (SCIAM). With an official day of September 5, SCIAM is celebrated throughout the month by individuals and organizations dedicated to preventing injury and improving the lives of those who are injured. By fostering a greater awareness within the general public, SCIAM seeks to engage people in creating a society that is inclusive for persons with a disability.

An additional message highlighted during this month is reducing your risk for sustaining a spinal cord injury. It is estimated that approximately 17,500 new cases of spinal cord injury (SCI) occur in the United States every year, with almost 40% of these injuries coming from vehicle crashes. Males ages 20-29 years are at the highest risk of sustaining an SCI, followed by females ages 15-19 years. The leading cause of injury is automobile and motorcycle accidents, which account for almost half of all new cases. At age 65 and over, the leading cause of sustaining an SCI is falling.

Each year, the International Spinal Cord Injury Society launches the month with a new motto. In light of the COVID-19 pandemic and the significant threat the virus poses for those with paralysis, this year’s slogan is *Covid-19 and SCI: Staying Well*. All persons are at risk of contracting the virus; however, those with a disability are at a higher risk for severe complications. Many individuals with an SCI are unable to practice the safety measures others take for granted; thus, their exposure is more significant, and the likelihood of contracting the virus increases.



Facts at Your Fingertips *continued from page 1*

Since 2007, Mission Connect has funded robotic and brain-machine interface research with \$1.7 million. A few examples of how the funds were used are the design and construction of the first powered pediatric exoskeleton, MAHI-EXOII (hand and arm robotic-assisted rehabilitation device), and purchase of Houston's first REX for use in research.

Since 2002, Mission Connect has provided more than \$4.8 million to support clinical research, including reserved time and equipment. A few of the areas include: the study of the neuroprotective effect of Riluzole, effects of transcranial direct stimulation with robotic rehabilitative training, surface EMG to detect movement intent, and autologous cord blood therapy in children with stroke.

Mission Connect Call for Proposals

In response to the 2020 call for proposals, 16 proposals were submitted for funding consideration by members of Mission Connect. This is approximately 40% fewer proposals than received in past years. The decline is directly attributed to COVID-19 institutional closures. Now in the hands of Mission Connect's external review committee, each research project is being reviewed and will receive a score based on a set of criteria. By September 28, all of the proposals will be back on Carol Garibay's desk, and based on the outcome of the reviews, approximately eight new investigations will launch before the year-end.



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