





TRIUMPH

his year has been a most exciting and productive year in the history of The Buoniconti Fund and The Miami Project to Cure Paralysis. Over the past thirty-two years, The Miami Project's team of devoted scientists, researchers, clinicians and staff have worked tirelessly to achieve extraordinary scientific progress in our quest to find a cure for paralysis.

Our scientists and clinicians are advancing The Miami Project's FDA-approved clinical trials and we have just completed our seventh patient by transplanting Schwann cells into their injured spinal cord. It is our intention to accelerate the trial by enrolling more research participants by using combination strategies to enhance the growth of the cells within the spinal cord.

We have made tremendous advances in our many clinical studies, including utilizing a protocol that directs a magnetic pulse through the brain to directly target the circuits that control muscle movement. The purpose of this study is to awaken and strengthen the circuits that provide muscular contractions and improve function.

I am proud to announce that The Christine E. Lynn Institute for The Miami Project to Cure Paralysis at UHealth/Jackson Memorial is being constructed at a rapid pace and is scheduled to open in 2020.

The Miami Project and The Buoniconti Fund remain 100% committed to achieving our ultimate goal of curing paralysis. I want to thank everyone for their continued support and belief in our mission including the Great Sports Legends Dinner Chairman Mark Dalton, The Buoniconti Fund Board of Directors, the Great Sports Legends, Honorees, our wonderful donors, tireless volunteers, Dinner attendees and our University of Miami President Dr. Julio Frenk.

I am often reminded of the promise my father made to me that he would never give up until we found a cure for paralysis. His promise has turned this commitment into a reality changing medical history and giving incredible scientific results to the millions worldwide with a spinal cord injury. We will never rest until everyone suffering from paralysis can rise from their wheelchairs once and for all!

Thank you for standing up for those who can't!

Marc A. Buoniconti

President, The Buoniconti Fund and The Miami Project



Drs. Barth A. Green, W. Dalton Dietrich, and Allan D. Levi

A critical mission of the Miami Project is to make new discoveries through basic and translational research to support our future clinical studies and trials.

he Miami Project to Cure Paralysis, a Center of Excellence at the University of Miami Miller School of Medicine, continues to develop new strategies for treating the devastating consequences of brain and spinal cord injury. Everyday over 200 scientists and investigators work toward obtaining new knowledge that is critical for the successful translation of new therapies to the clinic. This year has been an exceptional one in terms of progress in the neuroscience fields of neuroprotection and repair. Our cell therapy trials continue to move forward by testing the safety and benefits of novel cellular therapies including autologous Schwann cell transplantation in spinal cord injured subjects. Our results are showing safety and some beneficial outcomes important to people living with paralysis. We recently completed the initial cohort of subacute thoracic subjects injected with millions of human Schwann cells. These new findings have been published and presented at national and international meetings to inform other spinal cord researchers about our progress. We continue to recruit chronic spinal cord injured subjects and are completing our second cohort of studies that include individuals with thoracic or cervical spinal cord injury. An exciting clinical protocol combining cell transplantation with an extended period of exercise and rehabilitation strategies to improve whole body health and enhance the benefits of the cell therapy is being tested for the first time.

In addition to cell therapies for spinal cord and peripheral nerve injury, Miami Project investigators are also testing innovative neuromodulation approaches where the stimulation of specific brain and spinal cord circuits is being used to enhance function and improve motor and sensory recovery after spinal cord injury. Scientists are utilizing several minimally invasive approaches to activate residual or newly formed circuits that may contribute to functional recovery after spinal cord injury. Our current vision for the future is to combine safe and effective neuromodulation approaches with rehabilitation, robotic motor training and cell therapies to maximize the beneficial effects of these novel treatments.

A critical mission of The Miami Project is to make new discoveries through basic and translational research to support our future clinical studies and trials. Our scientists are therefore utilizing state-of-the-art drug discovery approaches to identify and test drugs and novel compounds that protect neurons from dying and promote successful axonal regeneration. New imaging strategies are identifying microstructural changes in the injured brain and spinal cord that may impede successful repair mechanisms. The role of inflammatory mediators in promoting tissue destruction and impeding successful regeneration is also being investigated to establish new therapeutic targets. In addition to promoting motor function, research is also focusing on quality of life issues such as neuropathic pain, autonomic dysfunction and spasticity all important to our spinal cord injury community. In addition to spinal cord injury, advances in successfully treating traumatic brain injury as well as concussion are also being made in the laboratory. The beneficial effects of therapeutic hypothermia in traumatic brain and spinal cord injury are being critically evaluated in randomized multicenter trials to limit the acute and more chronic consequences of central nervous system injury including the development of progressive neurodegenerative disorders.

Our Miami Project Educational Outreach Programs continue to reach out to individuals throughout the United States and abroad to provide new information regarding brain and spinal cord injury. These programs are also responsible for the recruitment and assessment of our volunteer subjects that participate in multiple clinical studies. As always we acknowledge and thank our spinal cord injury community for their important contributions to the success of our clinical research programs.

The construction of the Christine E. Lynn Rehabilitation Institute for The Miami Project to Cure Paralysis at UHealth/Jackson Memorial Hospital is progressing and we anticipate conducting many clinical programs in this state-of-the-art facility. This new hospital will allow our programs to grow and help larger numbers of individuals with injury-induced disabilities and quality of life issues. We are excited about the future as we continue to collaborate with research scientists and industry to test new technologies and approaches for improving functional recovery. We greatly appreciate the critical support of our friends and colleagues that are helping The Miami Project to advance our successful multidisciplinary research programs.

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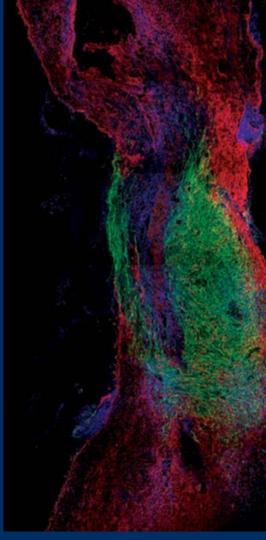
#### www.themiamiproject.org

The Project is published twice a year by The Miami Project to Cure Paralysis, a Center of Excellence at the University of Miami Leonard M. Miller School of Medicine.

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On the cover: This image shows a rat spinal cord that was transplanted with green Schwann cells (in an injectable matrix) into the contusion injury site, eight weeks prior. Piercing the implant is an area containing other types of cells (blue) including astrocytes (red) and also axons that are not visible with the staining.

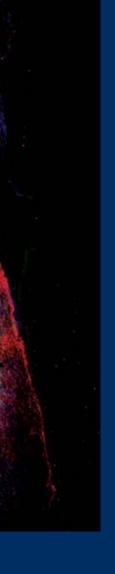


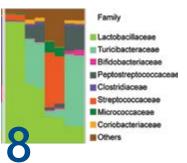
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The Importance of the Microbiome



Monica Perez, PT, PhD



32nd Annual Great Sports Legends Dinner



Jack Nicklaus 16th **Annual Celebrity** Golf Invitational

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# **Gut Check**

# The Importance of the Microbiome after Spinal Cord Injury

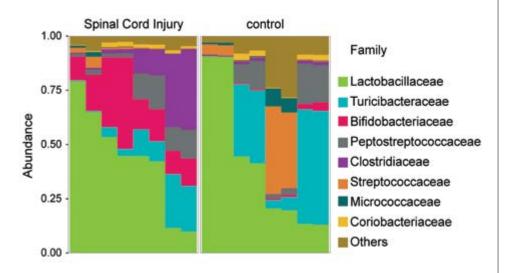
Miami Project scientists are looking at numerous causes of chronic systemic inflammation after SCI and how to deal with it. A new, and so far relatively overlooked, area of research involves the gut microbiome.

e all know that spinal cord injury (SCI) affects numerous body systems after injury. Loss of walking function is not the **ONLY** consequence of SCI. Also affected are bladder function, bowel function, sexual function, immune system function, and autonomic nervous system function, and many people experience spasticity and pain after injury.

Did you also know that SCI is characterized by chronic inflammation? It's well-known that inflammation occurs within the spinal cord immediately after injury, but more and more evidence is showing that common secondary complications after SCI, for example, urinary tract infections and pressure ulcers, can lead to a state of chronic inflammation. This chronic inflammation can negatively affect health outcomes after injury. Chronic inflammation in people without SCI is an established risk factor for cardiometabolic disorders, such as cardiovascular disease. In the SCI population, the risk of heart disease is significantly higher than in the general population, and it is thought that chronic inflammation is one reason for this prevalence. Miami Project professor, Dr. Mark Nash, has focused much of his research career evaluating targeted interventions to address cardiometabolic disease after SCI, such as diet and exercise, and recently published an authoritative guideline to inform clinicians who treat persons living with SCI.

If chronic inflammation can negatively affect the health of persons living with SCI, what causes it and what can be done about it? Miami Project scientists have identified numerous processes which contribute to persistent inflammatory stress after SCI. From pain and depression to urinary tract infections and obesity, the potential causes of inflammation are everywhere. A relatively new, and somewhat overlooked, source of inflammation involves the gut microbiome. The word "microbiome" refers to the bacteria that live in and on our bodies (ick...). These microbes, albeit small, are mighty and have great potential to impact our health. They communicate with our brain, contribute to metabolic function, modulate our immune system, and interact with most systems of our bodies.

Within the human body, the most diverse population of microbes is found within the gastrointestinal tract or "gut". Dr. Crystal Noller, a postdoctoral fellow, and Dr. Mark Nash, Professor of Neurological Surgery and Rehabilitation Medicine, recently published a review that implicates the gut microbiome as a potential source of inflammation after SCI. In addition, they are conducting a study to learn more



Different types of bacteria found in the intestinal tracts of animals after spinal cord injury and uninjured (control) animals.

about the gut microbiome. By characterizing the composition of the gut microbiome in people with SCI and comparing it to uninjured people, they hope to better understand how changes in the gut microbiome may relate to gastrointestinal dysfunction and how these changes may be contributing to chronic inflammation after injury.

Scientists in the lab of Dr. W. Dalton Dietrich, Scientific Director, are also investigating changes in the gut microbiome in a pre-clinical animal model of SCI. They compared the genetic information of different types of gut bacteria in rats with and without SCI. They found a few different types of bacteria which were significantly more prevalent after SCI (Lactobacullis intestinalis, Clostridium disporicum, and Bifidobacterium choerinum) and one that was significantly depleted (Clostridium saccharogumia). They also found significantly elevated inflammatory markers in tissues of the intestinal tract, which were correlated with diversity in bacteria types. By identifying specific types of bacteria that are different after SCI and understanding how these bacteria may be related to inflammatory markers, this study gives scientists a better idea of where to focus their efforts in the future. This will aid in the design and development of therapeutic interventions aimed at improving gastrointestinal dysfunction and reducing chronic inflammation, with the goal of improving health in people living with SCI.

Noller CM, Groah SL, Nash MS. Inflammatory Stress Effects on Health and Function After Spinal Cord Injury. Top Spinal Cord Inj Rehabil. 2017 Summer;23(3):207-217.

O'Connor G, Jeffrey E, Madorma D, Marcillo A, Abreu MT, Deo SK, Dietrich WD, Daunert S. Investigation of Microbiota Alterations and Intestinal Inflammation Post-Spinal Cord Injury in Rat Model. J Neurotrauma. 2018 Jun 7 (epub ahead of print).



Crystal Noller, Ph.D. is a postdoctoral research associate in the laboratory of Dr. Mark Nash. Dr. Noller is currently examining inflammatory stress after acute and chronic spinal cord injury in several preclinical models as well as in humans. One of her projects is evaluating the use of neuromodulation, specifically vagal nerve stimulation, to modulate inflammation after spinal cord injury. In addition to her research, Dr. Noller is dedicated to training undergraduate students and volunteers her time to education and outreach efforts.



### Monica Perez, PT, PhD

une Bruno has an appointment at The Miami Project from 8:30-11am five days a week. Accompanied every day by her husband, Jim, she has never missed a session. Even though they don't live very far away in neighboring Fort Lauderdale, the short drive can sometimes take up to two hours in rush hour traffic, so the Brunos leave their house at 7am and pay extra tolls to drive in the "express lanes". When June started volunteering as a research participant, she tripped and fell frequently and had terrible balance, resulting from an incomplete spinal cord injury (SCI). Now, after a few months of participation in research protocols, she is walking better, her balance has improved, and her (and her husband's) outlook on the future is becoming sunnier every day.

June is part of an ongoing research study at The Miami Project to Cure Paralysis in the laboratory of Monica Perez, PT, PhD, Professor of Neurological Surgery. Dr. Perez leads an impressive group of post-doctoral researchers, from all over the world, studying the mechanisms involved in the control of movement. Most people would assume that researchers who are interested in motor control could only study people who have SCI classified as "motor incomplete", or people who are able to move muscles below the level of injury. However, researchers have known for many years that most people with SCI classified clinically as "complete" have preserved tissue within the injured areas of the spinal cord. In fact, many people with "motor complete" injuries are able to produce small electrical signals, which can be detected by electrode recordings, in muscles that they cannot actively use, suggesting that connections between the brain and spinal cord still exist in many cases.



Opposite page: Dr. Perez interacts with research participant, June Bruno, during a session. Above: Research engineer, Audrey Wilson, applies transcranial magnetic stimulation to activate the motor cortex.

In fact, many people with "motor complete" injuries are able to produce small electrical signals, which can be detected by electrode recordings, in muscles that they cannot actively use, suggesting that connections between the brain and spinal cord still exist in many cases.



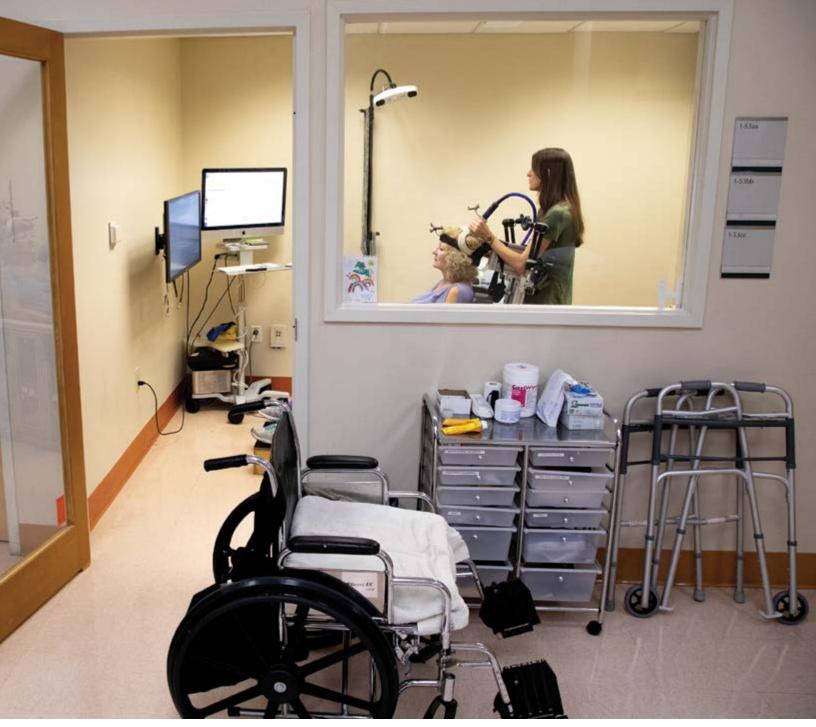
Dr. Perez' laboratory uses a specialized experimental protocol that is customized to each individual participant to take advantage of these spared connections. Here, magnetic stimulation is delivered to the motor cortex, the area of the brain that controls movement, using a minimally invasive method known as transcranial magnetic stimulation. Small electrical pulses are also applied to nerves to activate muscles from the periphery. The key factor is the timing when the brain and the nerve are activated in order to strengthen synaptic connections (please see related articles). Audrey Wilson, Engineer, Hounsh Munshi, Research Associate, and Dr. Hang Jin Jo work with Dr. Perez to combine this neuromodulatory approach with exercise training to further activate and strengthen these spared connections, with the goal of enhancing voluntary output in weak or paralyzed muscles. This protocol is pioneered by Dr. Perez' group in SCI and is currently used in only two places in the world, The Miami Project and in Sydney, Australia.

June and Jim Bruno say that they are incredibly thankful for the opportunity to participate in the cutting-edge research being done in Dr. Perez'laboratory. These active grandparents are planning their next international trip thanks to June's improved mobility. The researchers June works with on a daily basis are also grateful for the Brunos, because of their dedication and positive attitudes. The improvement that June is experiencing, along with the data obtained during her daily sessions, is helping the scientists understand more about the circuitry between the brain and muscles and develop innovative strategies for strengthening connections, which may result in functional improvements for many others in the SCI community.



Above: June participates in locomotor training in the neuromodulation research lab. Right: Marc Buoniconti exercises using an arm ergometer.





Above: Research participants engage in combinatorial approaches of activating the central nervous system to strengthen corticospinal pathways.

Bunday KL, Perez MA. Motor recovery after spinal cord injury enhanced by strengthening corticospinal synaptic transmission. Current Biology 22(24):2355-2361, 2012.

Urbin MA, Ozdemir RA, Tazoe T, Perez MA. Spike-timing-dependent plasticity in lower-limb motoneurons after human spinal cord injury. Journal of Neurophysiology 118:2171-2180, 2017.

Bunday KL, Urbin MA, Perez MA. Potentiating paired corticospinal-motoneuronal plasticity after spinal cord injury. Brain Stimulation 2018 (in press).

Christiansen L, Perez MA . Targeted-Plasticity in the Corticospinal Tract After Human Spinal Cord Injury. Neurotherapeutics 2018 (in press).

#### Dr. Cowan going to UAB

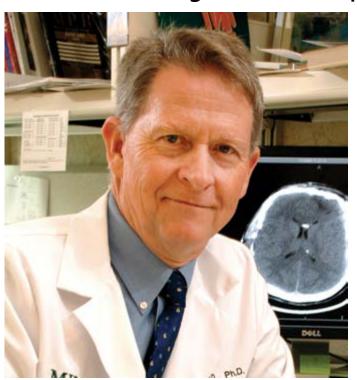
Please join us in congratulating Dr. Rachel Cowan, Research Assistant Professor at The Miami Project, who has recently accepted a position at The University of Alabama at Birmingham (UAB) as Assistant Professor in the Department of Physical Medicine and Rehabilitation (PMR).

Dr. Cowan's research focuses on maximizing mobility in non-ambulatory people with spinal cord injuries. Her work at The Miami Project over the years has generated evidence that helps people select and configure their wheelchairs to allow greater independence and quality of life. In addition, her most recent project, funded by the Department of Defense, is focused on developing relationships between fitness and function. This study will provide greater understanding of how many different factors contribute to a person's independence.

At UAB, in addition to continuing her research, Dr. Cowan will be a member of the PMR Department, School of Health Professions, and a local non-profit (Lakeshore Foundation) collaborative that is actively working to incorporate physical activity and exercise into the continuum of care for persons with spinal cord injury.



#### Dr. Bullock retiring from clinical practice to focus on research



Dr. M Ross Bullock, Professor in the Department of Neurological Surgery and Director of Clinical Neurotrauma at Jackson Memorial Hospital, will be retiring from clinical practice to focus on his experimental work at The Miami Project.

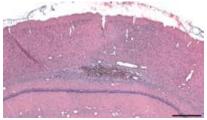
Dr. Bullock's research focuses on understanding the mechanisms and strategies for neuroprotection and repair after traumatic brain injury and spinal cord injury. His recent work has been concentrated moving a pre-clinical cell transplantation strategy out from the lab and into clinical trials in humans with traumatic brain injury. Dr. Bullock's research group, in collaboration with Neuralstem, was recently awarded a Phase I Small Business Innovation Research grant to continue development of a human neural stem cell line as a candidate therapeutic for severe traumatic brain injury.

# **Protecting the** Nervous System y Cooling it Down

Miami Project scientists are collaborating with other departments at The University of Miami to explore additional applications where hypothermia's neuroprotective effects may be beneficial.

t some point, you've probably heard about hypothermia treatment being used in people with new spinal cord injuries. Mild hypothermia treatment involves cooling a person's body temperature, by just a few degrees, immediately after injury, which appears to protect the nervous system from secondary damage Acaused by bleeding, swelling, and the body's natural inflammatory responses to trauma. Scientists at The Miami Project, led by Dr. Allan Levi, Professor and Chairman of The Department of Neurological Surgery, have been evaluating hypothermia in participants with acute SCI for over 10 years. His team is currently conducting a multi-center clinical trial to further investigate the effects of hypothermia treatment in people with cervical-level

(a)



Mild TBI - Normothermic

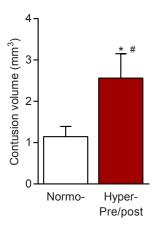
(b)



Mild TBI - Hyperthermic Pre/post

Above: Brain tissue that was a) normal temperature (37 degrees Celsius) and b) higher temperature (hyperthermic, 39 degrees Celsius) before and after mild traumatic brain injury (TBI).

Right: Contusion volume resulting from TBI is significantly greater when brain temperature is elevated. During exercise, the brain temperature increases, which may exacerbate damage caused by TBI.

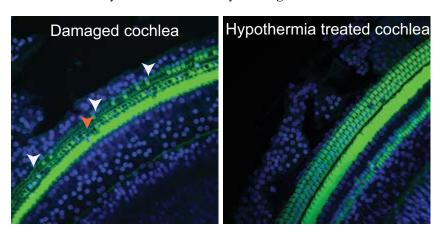


SCI. Results from this study should be able to provide data to determine whether systemic hypothermia should be implemented as part of the new standard of care treatment for cervical SCI.

Small variations in body and brain temperature can have a major effect on how much damage occurs in traumatic brain injury (TBI), as well. Hypothermia treatment has also been shown to be neuroprotective after TBI, by minimizing the cascade of temperaturesensitive secondary injury mechanisms. Miami Project scientists have also been examining the opposite situation, when temperatures are elevated

or "hyperthermia". This is extremely relevant, as many TBIs occur while people are playing sports or exercising (think concussions in the NFL), during which time brain temperature becomes elevated. Researchers in the laboratories of Dr. W. Dalton Dietrich, Dr. Helen Bramlett, and Dr. Coleen Atkins are using various pre-clinical models to evaluate the effects of hyperthermia before TBI. They are actually seeing that higher temperatures in the brain before TBI significantly increases damage when compared to TBIs that occur at normal temperatures.

Miami Project scientists are collaborating with other departments at The University of Miami to explore additional applications where hypothermia's neuroprotective effects may be beneficial. Dr. Dietrich, in collaboration with Dr. Suhrud Rajguru, Associate Professor of Biomedical Engineering and Otolaryngology, explored the effects of cooling during implantation of cochlear implants, electronic devices that can restore hearing in people with severe hearing loss. The trauma caused during cochlear implant insertion can lead to cell death and a loss of residual hair cells in the inner ear, leading to loss of residual hearing. Scientists decided to test whether cooling the cochlea could reduce residual hearing loss associated with electrode insertion trauma in an experimental animal models. They inserted a probe into the inner ear and reduced the temperature of the cochlea by 5-6 degrees Celsius for 20 minutes before and 20 minutes after implantation of the hearing device. Various therapeutic approaches have been studied to prevent cochlear implant-induced residual hearing loss with limited success. The found that cooling resulted in significantly less damage, which may lead to less loss of residual hearing. They also tested their approach in human cadaveric temporal bones to show that controlled and effective cooling could be applied and maintained. This simple, seemingly effective therapy could result in improved hearing function for many children affected by hearing loss around the world.



Far left: Damage to inner ear structure (cochlea) resulting from implantation of hearing device (cochlear implant).

Immediate left: Significantly less damage results following device implantation after a short period of cooling (hypothermia) treatment.

Dididze M, Green BA, Dietrich WD, Vanni S, Wang MY, Levi AD. Systemic hypothermia in acute cervical spinal cord injury: a case-controlled study. Spinal Cord. 2013 May;51(5):395-400.

Atkins CM, Bramlett HM, Dietrich WD. Is temperature an important variable in recovery after mild traumatic brain injury? F1000Res. 2017 Nov 20;6:2031.

Tamames I, King C, Bas E, Dietrich WD, Telischi F, Rajguru SM. A cool approach to reducing electrode-induced trauma: Localized therapeutic hypothermia conserves residual hearing in cochlear implantation. Hear Res. 2016 Sep;339:32-9.

### Schwann Cell Transplantation

#### **Supporting Survival and Function**

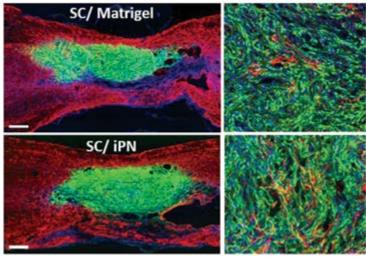
Despite the successful translation of Schwann cells from the laboratory "bench" to the clinical trials "bedside", Miami Project scientists continue to study Schwann cells in pre-clinical models of SCI, exploring methods to optimize their function. In the current human trials, Schwann cells are injected into the spinal cord in a liquid suspension that contains amino acids, vitamins, and nutrients, which have been shown to improve cell survival and function. Unfortunately, some Schwann cells do not survive long after transplantation, limiting their potential beneficial effects. For this reason, Miami Project researchers have been evaluating different methods of delivering Schwann cells to the injury site, in hopes of improving Schwann cell survival and, thus, functional outcomes.

Instead of injecting the Schwann cells in a liquid, scientists at the Miami Project are evaluating the use of gel-like materials that may improve transplanted cell survival and serve as a supportive scaffold for nerve fiber regrowth. Professor Damien Pearse and his researchers found that transplanting Schwann cells in a gel-like material (Matrigel) improved survival, nerve fiber growth, and functional recovery when compared to a liquid suspension in a pre-clinical animal model. This showed that the vehicle in which Schwann cells are transplanted is important for the efficacy of treatment. However, Matrigel is created from mouse tumor tissue and is, therefore, not a good option for human transplantation.

Dr. Mary Bunge, now Professor Emerita, and her team set out to identify a gel-like matrix that could eventually be used in human clinical trials. Peripheral nerve tissue, which is the natural environment of Schwann cells, seemed like it could be beneficial. By removing all cells from the tissue and preserving the extracellular matrix, no immune suppression is required after transplantation. Scientists in the laboratory of Dr. Bunge performed experiments to compare an injectable peripheral nerve (iPN) matrix to the Matrigel, which generated positive results in previous experiments by Dr. Pearse.

Susana Cerqueira, Ph.D., a postdoctoral associate in Dr. Bunge's lab, was the lead author of the recently published study in *Biomaterials*. Dr. Cerqueira, Dr. Bunge, and their bioengineer collaborators at the University of Florida found that more transplanted Schwann cells survived in the iPN, and those cells were healthy and functional. Two weeks after

transplantation, they actually found three times as many Schwann cells in the iPN group. By eight weeks posttransplant, Schwann cells took up most of the damaged area of the spinal cord. The cells made bridges from one side of the lesion to the other and did not migrate significantly out of the lesion area. In addition to improving Schwann cell survival, the iPN transplants contained twice as many myelinated (insulated) nerve fibers in them. There were some functional improvements, too, in some of the behavioral outcome measures.



Schwann cells (SC) transplanted into the injured spinal cord in either Matrigel or injectable peripheral nerve (iPN) matrix at eight weeks post-transplantation. Transplanted SCs (green), astrocytes (red), and cell nucei (blue) are visible.

To right of each: Higher magnifications of the central areas are shown, which highlight the density of the grafts.

These exciting results indicate that transplanting Schwann cells in an injectable peripheral nerve matrix improves their survival and function. This technique could be implemented in future human clinical trials for SCI and eventually in clinical applications. Once the human Schwann cells are removed from the nerve, the remaining material could be prepared for the injectable matrix to accompany the cells.

Dr. Cerqueira was recently awarded the TEAM Neurotrauma (Training, Education, and Mentoring) Visiting International Scholar Award (TEAM-VISA) from the National Neurotrauma Society. This award was established to promote international networking opportunities and to advance the early careers of women Neurotrauma researchers. Dr. Cerqueira used the award to visit the laboratory of Dr. Frank Bradke in Bonn, Germany, at the German Center for Neurodegenerative Diseases (DZNE). While

there, she developed her expertise in advanced imaging of regenerating nerve fibers. She says that she is "very excited now with the possibilities to apply the new imaging techniques I learned in the Bradke's lab, to my ongoing research" at The Miami Project.

Patel V, Joseph G, Patel A, Patel S, Bustin D, Mawson D, Tuesta LM, Puentes R, Ghosh M, Pearse DD. Suspension matrices for improved Schwann-cell survival after implantation into the injured rat spinal cord. J Neurotrauma. 2010 May;27(5):789-801.

Cerqueira SR, Lee YS, Cornelison RC, Mertz MW, Wachs RA, Schmidt CE, Bunge MB. Decellularized peripheral nerve supports Schwann cell transplants and axon growth following spinal cord injury Biomaterials. 2018 Sept; 177:176-185.



Dr. Susana R. Cerqueira earned a Bachelor of Science in Applied Biology from the University of Minho, in Portugal. She also earned her Ph.D. in Tissue Engineering, Regenerative Medicine and Stem Cells from the School of Engineering, University of Minho. Her thesis was titled "Cell targeted nanoparticle-based drug delivery systems for spinal cord injury repair". Dr. Cerqueira then joined Dr. Mary Bunge's laboratory at Miami Project to Cure Paralysis in 2014 to continue developing interdisciplinary and collaborative projects with the goal to improve the efficacy of Schwann cell transplantation as a treatment for spinal cord injuries. She is currently investigating the role of epigenetic mechanisms in inflammation after injury with Dr. Jae Lee, in collaboration with Dr. Nagi Ayad.

# The Christine E. Lynn Rehabilitation Institute









Work has begun on the Christine E. Lynn Rehabilitation Institute for the Miami Project to Cure Paralysis at UHealth / Jackson Memorial Hospital. Thanks to a generous gift of \$25 million from Mrs. Lynn, the new Institute will offer state-of the art rehabilitation to people with neurological injuries and disorders. Basic and translational resarchers from the Miami Project will join together with clinical and rehabilitation specialists from the University of Miami and Jackson Memorial Hospitals under one roof, improving collaboration and outcomes for people affected by neurological ailments. Demolition and construction is underway and the facility is scheduled to open in 2020.

Artist renderings of the Christine E. Lynn Rehabilitation Institute, which is slated for completion in 2020. The building will bring together researchers and clinicians from The Miami Project, University of Miami Health System, and Jackson Memorial Hospital.











Above: Groundbreaking ceremony held at the future site of the Christine E. Lynn Rehabilitation Institute. Notable attendees included Christine E. Lynn (in red), Marc Buoniconti, Dr. Barth Green, Dr. Dalton Dietrich, Suzie Sayfie, and Stephanie Sayfie Aagaard.

Left: additional artist renderings of the Christine E. Lynn Rehabilitation Institute.



**Presented by Tudor Group** 

# Great SPORTS Legends Dinner to Benefit The Buoniconti Fund

#### PRESENTED BY TUDOR GROUP

David Ortiz, Simone Biles, Alonzo Mourning, Jason Taylor, Scott Dixon, Kim Clijsters and Abby Wambach honored; Bob Costas from NBC Sports emceed; Chicago performed; special awards to Brian and Amy France, John Walsh, Romero Britto and Dick Anderson

n iconic group of Sports Legends, Hall of Famers, Gold Medalists, World Champions, and Honorees were recognized by **The Buoniconti Fund to Cure Paralysis** at the 32<sup>nd</sup> **Annual Great Sports Legends**. **Dinner** presented by **Tudor Group** on **Monday, September 25, 2017** at The New York Hilton Midtown Hotel.

The premier event, hosted by NFL Hall of Famer **Nick Buoniconti** and his son **Marc** and chaired by Buoniconti Fund Board Member **Mark Dalton**, honored legendary designated hitter and first baseman for the Boston Red Sox **David "Big Papi" Ortiz**, four-time Olympic Gold Medalist **Simone Biles**, NBA Hall of Famer and former Miami Heat forward **Alonzo Mourning**, NFL Hall of Fame defensive end and linebacker for the Miami Dolphins and New York Jets **Jason Taylor**, four-time IndyCar Racing Champion **Scott Dixon**, six-time tennis Grand Slam champion **Kim Clijsters**, and FIFA Women's World Cup Champion and two-time Olympic Gold Medalist **Abby Wambach**.

NBC Sports personality **Bob Costas** helped The Buoniconti Fund pay tribute to the 2017 Honorees: NASCAR chairman and CEO Brian France and Amy France received The Outstanding Philanthropists Award. Television personality and victim rights activist John Walsh was presented with The Inspiration Award. Renowned Brazilian artist and activist Romero Britto received The Humanitarian Award. Former Miami Dolphin and longtime Buoniconti Fund champion Dick Anderson accepted The Buoniconti Fund Award.

This year's event also served as a launch for the publication of *Undefeated: From Tragedy to Triumph*, a candid, compelling and inspiring memoir by Marc Buoniconti recounting his days as an admittedly reckless youth and teen to the day his world changed after a paralyzing football injury while in college and how he has dedicated his life since to helping others, and to finding a cure for paralysis.

For more information about The Buoniconti Fund, the fundraising arm of The Miami Project at the University of Miami Miller School of Medicine, please visit: www.thebuonicontifund.com or call 888-STAND UP. To take part in the conversation on social media follow us at facebook.com/cureparalysis, or twitter.com/BuonicontiFund, using the hashtags #SportsLegendsDinner and #BuonicontiFund.



2017 Sports Legends and Honorees with Nick and Marc Buoniconti



Terry and Marc Buoniconti with Romero Britto



Jason Taylor and Alonzo Mourning



Simone Biles and Nick Buoniconti



John Walsh, Gloria Estefan, Marc Buoniconti, Emilio Estefan and David "Big Papi" Ortiz



David "Big Papi" Ortiz and Marc Buoniconti



**Bob Costas** 



Shane Battier with Madeleine and Micky Arison



Helio Castroneves



David "Big Papi" Ortiz, Dr. Barth Green and John Walsh



Gloria and Emilio Estefan



David "Big Papi" Ortiz and Swanee DiMare



Abby Wambach, Marc Buoniconti and Kim Clijsters



Simone Biles and Mark Dalton



Dick Anderson and Richard Gray



Amy and Brian France



Jason Taylor with Nick and Marc Buoniconti



Chicago



Romero Britto



Dr. Julio Frenk, University of Miami President and Dr. Eugene Sayfie



Nellie Biles, Simone Biles, Stephanie Sayfie Aagaard and Suzie Sayfie



Bob Beamon and Gary Hall



Tracy and Alonzo Mourning



Andre Dawson and Scott Erickson



Bob Costas and Stephanie Sayfie Aagaard



Emerson Fittipaldi and Scott Dixon



David "Big Papi" Ortiz with Emma and Scott Dixon



Alonzo Mourning



#### **Presented By Tudor Group**

ack Nicklaus, the greatest golfer who ever lived, along with Marc Buoniconti hosted the 16th Annual Buoniconti Fund Celebrity Golf Invitational Presented by Tudor Group at Nicklaus' home club and course, The Bear's Club in Jupiter, Florida. For the past 16 years, the two-day event, which included an inspirational Sunday night dinner, was followed by the exciting celebrity golf tournament on the flawless Bear's Club 18 holes. The tournament has consistently brought together some of the world's top business leaders and celebrities to join forces to find a cure for spinal cord injuries. Since its inception, The Bear's Club event has raised millions to help fund spinal cord injury research programs at The Miami Project to Cure Paralysis at the University of Miami Miller School of Medicine. The Buoniconti Fund sends special thanks to Barbara and Jack Nicklaus for their continued generosity and for constantly standing up for those who can't.

Golfers and celebrities including NFL Hall of Famer Jason Taylor, World Series Champion Pitcher Scott Erickson, NFL Hall of Fame Quarterback Bob Griese, 1972 Miami Dolphins Perfect Season member Dick Anderson, NY Yankee pitching great and AL Rookie of the Year Stan Bahnsen, former Dolphins Offensive lineman Jeff Dellenbach, former NY Giants Running back Tucker Fredrickson, three-Time Super Bowl Champion with San Francisco and Denver, cornerback **Tim McKeyer**, Super Bowl MVP with the Washington Redskins Mark Rypien, Actor from All My Children, Single Ladies and Dancing with the Stars Aiden Turner, former Bengals Running back Ki-Jana Carter, former NY Giants Linebacker Brian Kelley, former Dolphins Receiver Fred Banks, former Major League pitcher with the Expos and Tigers Bill Gullickson, former Twins Infielder and AL Rookie of the Year John Castino, former Bengals Safety Darryl Williams, former MLB catcher with the Indians and Yankees Rick Cerone, former Dolphins Tight End Jed Weaver, and many more enjoyed the Celebrity Dinner affair and a spectacular day of golf on the prestigious golf course.

Special thanks to Tudor Group, PGA National Resort and Spa, The Bear's Club, Delta Airlines who donated First-Class tickets as prizes and Tiffany & Co. who donated the awards.



Jack Niclkaus, Marc Buoniconti and Barbara Nicklaus



Mark Dalton and Marc Buoniconti



Mark Rypien



Jason Taylor



On January 13, the Miami Chapter hosted the 9th Annual Block Party. The event celebrated nearly 400 guests and community partners for an amazing night under the stars with sumptuous food by Hillstone Coral Gables, local craft beer and desserts, live music, dancing, emcee NBC6 Roxanne Vargas and an auction.



Block Party 2018, photo courtesy of Justin Namon

**Trivia Night** to benefit The Indianapolis Chapter was held on March 29 at the German-American Klub where teams competed for the top cash prize and bragging rights for this second annual event.

The Chapter also hosted a **Pub Crawl** in the popular Speedway area of Indianapolis for an afternoon of fun to raise awareness and funds to support spinal cord injury research.

Indianapolis Chapter Committee





The Woody Foundation held its **7**<sup>th</sup> **Annual Golf Classic** on April 19 with nearly 100 golfers, sponsors and volunteers to support this great day of golf, community and spinal cord injury research awareness. The Woody Foundation has designated The Buoniconti Fund as an event beneficiary and partner for this tournament since 2012, raising \$250,000 to support the research at The Miami Project. The Woody Foundation, Inc. is a 501(c)(3) not for profit organization formed in 2011 to raise funds for the recovery of spinal cord injured persons. James "Woody" Beckham suffered his spinal cord injury making a rugby tackle in January 2011.

Bill and Woody Beckham with Lucy Foerster



The Boston Chapter presented their annual Comedy Show – an evening of laughter for a good cause hosted by Joe McGrath. The show was a success again this year, featuring regional and national comedians performing to a sellout crowd on May 17 at Giggles Comedy Club and Prince Pizzeria in Saugus, MA.

Boston Chapter hosts Comedy Show 2018

The Pittsburgh Chapter hosted their 14th Annual Golf Tournament on June 23 at Carmichaels Golf Course with another sell out crowd of golfers, volunteers and sponsors including Jeremie Synder Electrical and Pro Builders Concrete. This annual tournament has raised nearly \$250,000 to support The Miami Project to Cure Paralysis.



Sponsor – Jeremie Snyder Electrical Contracting



Beckie Sray and family

Let us know if your community could benefit from a Volunteer Chapter which develops fundraising events and awareness campaigns to help us reach our goal of finding a cure for paralysis. There's no better time to create SCI awareness in your community! Email bfchapters@med.miami.edu or call (305) 243-3863 to get started. Visit www.thebuonicontifund.com/chapters for the latest events and community outreach and join the Buoniconti Fund Chapters on Facebook.

Chapters Challenge is in its eighth year as a successful campaign that encourages our volunteers and supporters participating in local, national and international races to utilize our web-based program to raise funds and awareness on behalf of The Buoniconti



Fund and The Miami Project to Cure Paralysis. Race participants can establish their own page, fundraising goals, contact friends and family, track their success, and make donations directly to The Buoniconti Fund. Our goal is to have our supporters walk, run, swim, bike or wheel their way across the finish line! http://chapterschallenge.thebuonicontifund.com



Darrell Gwynn has spent most of his adult life caught between the twin poles of a blessing and a curse. In 1990, 28 years ago at the age of 28 he left his arm, racing career and ability to walk against a stretch of cold, unforgiving British retaining wall when a race car he was piloting collided at over 250 miles-per-hour.

Within seconds, the NHRA Champion's entire world changed forever. Through good fortune and a ton of blood, sweat and tears, Darrell was able to rekindle a new relationship with The Miami Project to Cure Paralysis, an organization he had aligned

#### I am proud of the lives we've been able to change through our wheelchair donation program, and by supporting cutting edge research at The Miami Project - Darrell Gwynn

himself with prior to his life-threatening mishap. From that moment on, the man and the cause were permanently one.

The Miami Project and its fundraising arm, The Buoniconti Fund, along with their amazing staff of scientists, physicians and clinicians have since enabled Darrell to have a family and enjoy a high level of function and independence. During the past 28 years, and most recently through his work leading the Darrell Gwynn Quality of Life Chapter of The Buoniconti Fund, he has witnessed the relentless and unwavering pursuit of research to find a cure for paralysis. In 1990, Darrell had to put the brakes on his promising racing career and he has never been more committed to his partnership with The Miami Project and The Buoniconti.

Opposite Page: Lisa and Darrell Gwynn As the scientific progress continues, Darrell continues to dedicate his life to enlist and activate a unique and unparalleled team of friends and associates to join in this final push for victory over paralysis. In 2018, the Darrell Gwynn Quality of Life Chapter will use this 28-year milestone to fund this final drive to Put the Brakes on Paralysis.





Hot Rods & Reels Charity
Fishing Tournaments pair
NASCAR drivers and legends
with philanthropic supporters,
executives and racing fans for
a truly one-of-a-kind, exciting
day of fishing on the in-field
lake. This takes place twice a
year. The first is held during
the Ford Ecoboost Weekend at
Homestead-Miami Speedway
in November, and then during
the Daytona 500 at Daytona
International Speedway in
February.

NASCAR drivers and legends team with NHRA Hall of Fame former drag racer Darrell Gwynn to raise awareness for spinal cord injury research and people living with paralysis. The Darrell Gwynn Quality of Life Chapter of The Buoniconti Fund to Cure Paralysis is the event host and benefiting charity.

Hot Rods & Reels participants, tournament sponsors, event partners and guests also have the unique opportunity to witness a special wheelchair presentation ceremony. Owen Johnson was the recipient at Daytona International Speedway in February 2018.



Darrell Gwynn with NASCAR drivers and Owen Johnson, wheelchair recipient



Darrell Gwynn with fishing guides and wheelchair recipient Owen Johnson

#### 22<sup>nd</sup> Annual **Ricky Palermo Spinal Injury Golf Tournament**



In 1981, at the age of 21, Ricky Palermo was in an automobile accident that left him paralyzed. Five years later, Ricky contacted The Miami Project and became one of our organization's earliest research participants, who was involved in the evaluation of functional electrical stimulation.

Ricky was inspired by late, great Rochester basketball official Pete Pavia, who raised tens of thousands of dollars for Camp Good Days and Special Times while battling terminal cancer. Palermo and his family started a golf tournament in Batavia, New York in 1997, with modest fundraising expectations.

This year, Ricky and the Foundation supporters held the 22nd Annual Ricky Palermo Spinal Injury Golf Tournament on August 4th at Terry Hills Golf Course. More than 200 golfers participated and 400 people attended the dinner that followed at Genesee Community College in Batavia, New York. The golf tournament has raised more than \$1.4 million over the past 22 years to help those suffering from the devastation of paralysis.

The Miami Project is grateful to the Palermo family and the Batavia community for their support of The Miami Project's research programs. This year, Miami Project scientist Dr. Mark Nash spoke at the event. In addition, Ricky's niece, Annie Palermo, PT, has dedicated her career to improving the lives of people with spinal cord injury. She is a research therapist, also working on her Ph.D., at The Miami Project in the lab of Dr. Nash.

#### The 20th Annual **Kevin Kitchnefsky Golf Tournament**

In 1996, while on the job for a construction company in New Jersey, Kevin Kitchnefsky was unloading two stacks of chain-link fence from a tractor-trailer when 27 units of fencing, each weighing about 100 pounds, slid off the truck and pinned him against the tractor-trailer, leaving him paralyzed. Determined to improving the lives of those living with spinal cord injury, Kevin launched his first golf tournament to fund paralysis research.

On June 24th, Kevin and The Kitchnefsky Foundation for Spinal Cord Research held its 20th Annual golf tournament at the Tunkhannock Stone Hedge golf course. More than 144 golfers and friends attended the event for a day of entertainment and celebration. To date, the Foundation has raised more than \$600,000 to fund spinal cord injury research. An additional \$150,000 has been raised to provide quality of life grants to individuals in Pennsylvania who are living with a spinal cord injury. Dr. Katie Gant, The Miami Project's Director of Education and Outreach and Associate Scientist, spoke at the event. The Miami Project is grateful to Kevin and his family hosting this tournament and for their continued support of spinal cord injury research.



Kevin Kitchnefsky with Dr. Katie Gant

#### With Another Amazing Turn Out 13<sup>™</sup> Annual **Poker4life™** Charity Poker Championship A Tremendous Success

he 2018 Poker4Life (P4L) team appreciates all of our guests, supporters and sponsors including ZYR Vodka, NY Knicks, NY Rangers, NY Yankees, Awl & Sundry, VALOR Liquor, Pro Poker Gear, Blatt's Billiards, PokerDivas, GoCharity, Poker Players Alliance, and many more. We could not host such a successful tournament year in and year out without all our friends and supporters.

Jeremy Schwartz and Ethan Ruby, Founders of P4L, want to send a very special thank you to Jewelry on 5th, Semper Capital, Marc Buoniconti, Suzie Sayfie, Vinny Pastore, Goumba Johnny, Chris Murney, Andy Frankenberger, Maria Konnikova, Mary Gatchell, Jimmy Lee and Tony's Di Napoli.

Congrats to all of our 2018 P4L Final Table Winners!

1st - Leszek Markowski, 2nd - Scott Valenzano, 3rd -Micah Goldberg, 4th - Pat Hartley, 5th - Chris Bonn, 6th - Manish Vaswani, 7th - Adam McLaughlin, 8th -Ed Mancini, 9th - Erik Ma, 10th - Joseph Umdenstock

A hearty thank you to the 2018 "All-In" Award recipient Christopher Murney for all the work he does, and for always being a great supporter for over 13 years.

We are proud to say that all of your donations over the years have truly made it a difference in the advancement in research. The Buoniconti Fund and Miami Project are continuously making tremendous strides towards a cure because of the support provided through the tournament.

We hope to see you at our 14th Annual Poker4Life™ Charity Poker Championship Event in 2019!

Who Do You Play For?

www.Poker4Life.org



Winner Leskek Markowski with Jeremy and Ethan



Chris Murney Julie and Ethan Ruby with special guest Vinny Pastore from The Sopranos and Jeremy Schwartz



Players at the 2018 P4L Tournament



#### SAVE THE DATE!

The 34TH Annual Great Sports Legends Dinner

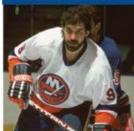
to benefit

#### The Buoniconti Fund to Cure Paralysis

The Fundraising Arm of The Miami Project to Cure Paralysis

#### September 2019

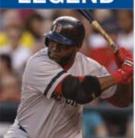
HARRY CARSON



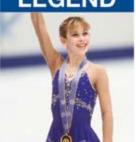
CLARK GILLIES



ALONZO MOURNING



DAVID ORTIZ



TARA LIPINSKI

#### SPORTS



MARIANO RIVERA

SPORTS



TERRY BRADSHAW

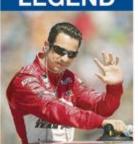
SPORTS LEGEND



JACK NICKLAUS



**VENUS WILLIAMS** 



**HELIO CASTRONEVES** 

#### INSPIRATION AWARD



EMILIO and GLORIA **ESTEFAN** 

BUONICONTI **FUND AWARD** 



CHRISTIAN SLATER

**HUMANITARIAN** AWARD

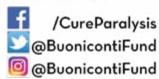


**ROMERO BRITTO** 



NICK AND MARC BUONICONTI

BUY YOUR TABLES AND TICKETS TODAY! Stephanie Sayfie Aagaard at 305-243-4656 or saagaard@miami.edu www.thebuonicontifund.com/gsld





17<sup>TH</sup> ANNUAL

#### THE BUONICONTI FUND CELEBRITY GOLF INVITATIONAL AT THE BEAR'S CLUB

Hosted by Jack Nicklaus to benefit The Buoniconti Fund to Cure Paralysis





- Golf legend Jack Nicklaus will play with the Presenting Sponsor in this tournament.
- Golf with sports and entertainment starts at this exclusive golf course, The Bear's Club.
- Seated dinner at The Bear's Club clubhouse on Sunday evening of event.
- Buy It Now Store featuring one-of-a-kind Sports Memorabilia, Exquisite Jewelry and Exotic Getaways on Sunday evening of event.
- · Early morning breakfast at The Bear's Club clubhouse on Monday morning of event.
- · Dazzling day of golf with on-course contests.
- Awards ceremony luncheon following golf invitational.
- First class golfer gifts.

#### WHEN

Spring 2019

#### WHERE

The Bear's Club Jupiter, Florida

#### CONTACT

For sponsorship and golf information, please contact:

Stephanie Sayfie Aagaard at 305-243-4656 or saagaard@miami.edu



www.thebuonicontifund.com/bearsclub



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Nick Buoniconti, Paul DiMare with Christine E. Lynn



Matthew Whitman Lazenby



Dick Anderson



Victoria Ranger Nuñez and Dr. Dalton Dietrich



Mark Dalton



Diana Morrison



Jim Ferraro, Dr. Barth Green, Nick and Marc Buoniconti



Jack Schneider, Richard Gray and Tim Gannon

Mr. Gary Abramson



Richard Aldrich, Jr.



Kandy Kramer



Bob Bantle





Keith T. Misner



Christine E. Lynn and Adam Carlin

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For Those Who Can't

#StandUpForThoseWhoCant #CureParalysis



