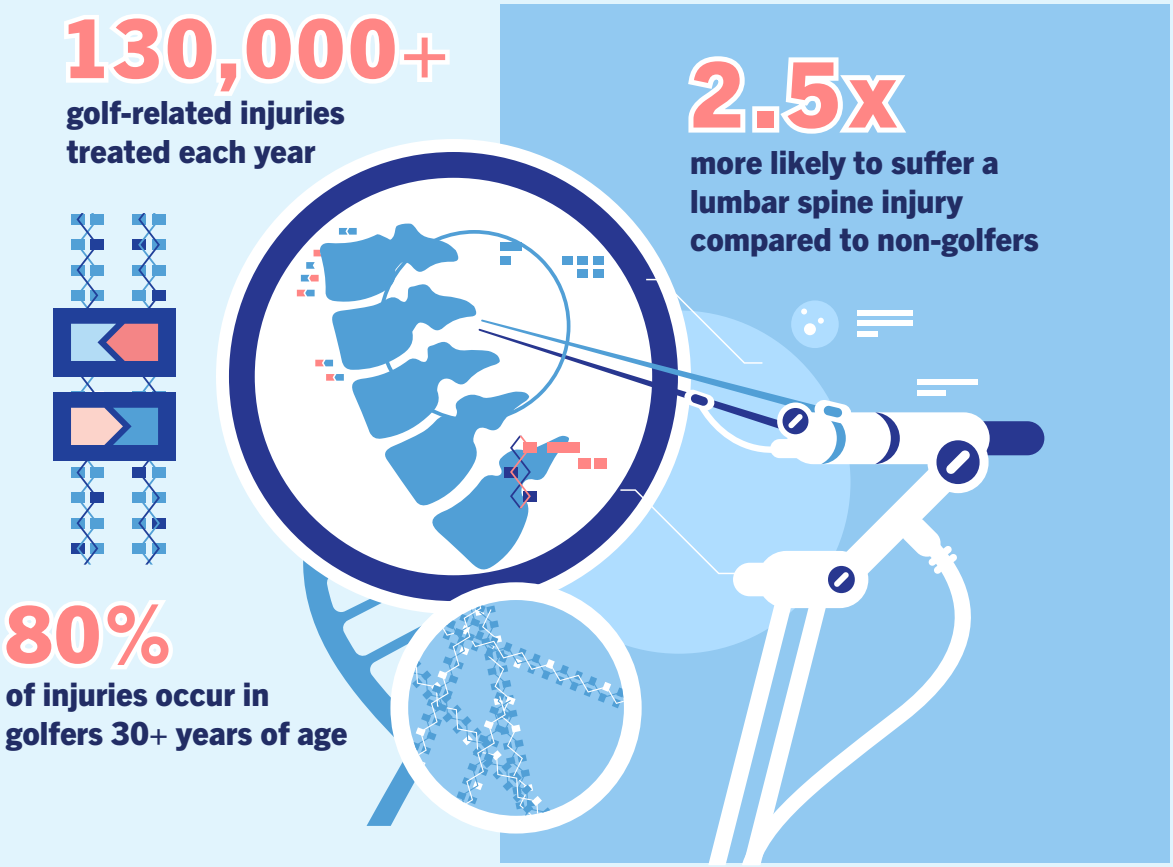
Barrow Golf Neuroscience Research Laboratory

Barrow
Neurological Foundation

BARROW GOLF NEUROSCIENCE RESEARCH LABORATORY

When it comes to back pain, the modern golf game is no laughing matter: it is a contact sport that can cause serious physical injury. About 55% of professional golfers and 35% of amateur golfers experience sport-related back injuries.



Golfers can crush drives at distances greater than three football fields, applying stress to their spine with up to eight times their body weight. According to a study by Barrow neurosurgeon Randall Porter, MD, and Chief of Spinal Disorders, Juan Uribe, MD, the repeated, violent twisting of the modern golf swing results in degenerative damage to lumbar discs in the spine, known as repetitive traumatic discopathy (RTD). Over time, this can lead to crippling pain and acute injury that often requires back surgery.

After physical therapy or surgery to treat their back pain, professional and amateur golfers alike all have the same question: *When can I safely return to play?*

Currently, there is little evidence-based research on the exact cause of golfers' back pain, how to best treat it, and when it will be safe to get back to the game. Through philanthropic support, **Barrow will change this paradigm.**

THE GOLF NEUROSCIENCE RESEARCH LABORATORY

Barrow was a key player in developing the National Football League (NFL) Game Day Concussion Diagnosis and Management Protocol, which includes baseline testing, innovative research, video technology, and standardized evaluations. By establishing the Golf Neuroscience Research Laboratory, Barrow aims to deliver that same level of innovative research and uniform treatment guidelines for golfers suffering from back injuries.

Led by Dr. Porter and Scott Kreiner, MD, a leading interventional spine specialist and physiatrist at Barrow,, the Golf Neuroscience Research Laboratory will utilize state-of-the-art analytic equipment to:

- **Study the biomechanics of the modern golf swing to determine a link with RTD**
- **Conduct pre- and post-injury research on professional and amateur athletes**
- **Collect data on golfers before and after spine surgery**
- **Develop innovative treatment and science-backed guidelines for care**

The Golf Neuroscience Research Laboratory will emphasize collaborating with golfers at all levels and research will be conducted utilizing analytic equipment developed by Gears Sports™. This includes an optical motion-tracking system that measures more than 1,000 points on a golfer's body to evaluate their swing. The data produced by this state-of-the-art system indicates whether the biomechanics of a player's swing contributes to back pain. Over time, the team will develop a comprehensive database differentiating healthy and hurtful golf swings for further investigation.

> **We're not here to teach you how to hit farther, but how to hit healthier.**
>
> Randall Porter, MD

Funding Support

Funded through philanthropy, the Golf Neuroscience Research Laboratory will provide life-changing, science-backed guidance for golfers of all abilities to safely return to the game they love. Located within the main Barrow campus, the lab's initial design is already complete, and construction is projected to conclude in spring 2025.

In addition to costs associated with construction and lab equipment, the Golf Neuroscience Research Laboratory will require the following annual investment in human capital and resources:

- **Research Scientist** who will be responsible for developing study protocols, overseeing data collection, and compiling data conclusions for published findings.
- **Research Specialists** who will oversee patient scheduling, interactions, and simulation testing, along with assisting in data collection and evaluation.
- **Training and Education** for golf lab clinicians to ensure the proper monitoring and maintenance of state-of-the-art equipment.
- **Technology** upgrades for data software and storage access.

The Sonntag Spine Center

The Sonntag Spine Center at Barrow is a global leader in treating spinal injuries and disorders. Barrow spine surgeons have one of the largest bodies of experience in minimally invasive spine surgery in the Southwest, performing more than 3,000 operations each year.

Through groundbreaking research, innovation, and education, the Sonntag Spine Center is revolutionizing the treatment of spinal disorders so patients can recover quicker and go on to lead healthy and fulfilling lives. The Center is also dedicated to investigating emerging technologies and techniques in spine surgery. It comprises three research laboratories: the Spine Biomechanics Laboratory, the Virtual Reality Spine Laboratory, and the Golf Neuroscience Research Laboratory.

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