



Former NFL Players Show Interest in Regenerative Medicine and Cell Therapies

Results of Recent Survey

October 2020



Introduction

Members of the National Football League (NFL) Alumni Association (NFL Alumni), a non-profit organization formed in 1967 by a small group of successful retired NFL players, have shown considerable interest in the potential of regenerative medicine and cell therapies (RMCTs) to address areas of member need. While there is a significant amount of interest in these therapies, there is limited knowledge about the science behind RMCTs, their benefits and risks, the Food and Drug Administration (FDA)-regulated clinical trials that are currently underway, and the questions that patients should be asking before engaging in clinical trials and treatments for various conditions.

To assess current awareness and inform its efforts to educate its membership, as part of its “Care for Our Own” initiative, NFL Alumni partnered with Alliance for Cell Therapy Now (ACT Now)—an independent, non-profit collaboration of leaders representing academic and medical institutions, industry innovators, health care providers, and patients—and Sanford Health—one of the largest health systems in the United States and a member of ACT Now—to develop, conduct, and summarize the results of a survey of NFL Alumni members regarding their interest in and use of RMCTs.

This report provides a summary of the survey results, along with a brief overview of RMCTs, and the actions that NFL Alumni is taking to help its members learn more about and gain access to safe and effective RMCTs through clinical trials and other FDA-approved treatment options.



About the Survey

Nearly 1,300 (1,283) NFL Alumni members responded to the survey. Eighty-seven percent of respondents were former NFL players, while eight percent were former front office staff and associate members, and five percent were former NFL cheerleaders. The survey was administered by Sanford Health using REDCap (Research Electronic Data Capture), a secure web-based application. Survey invitations were sent via email by NFL Alumni to 9,200 former NFL players and NFL Alumni members through REDCap on December 19, 2019. Three reminders were sent before the survey was closed on January 29, 2020.

It is important to note that the purpose of the survey was to assess awareness of and interest in RMCTs to inform NFL Alumni educational efforts. Survey sponsors did not evaluate the types of treatments provided to survey respondents or whether they were provided under FDA-regulated clinical trials.

About Regenerative Medicine and Cell Therapy

Regenerative medicine and cell therapies focus on repairing, replacing, and restoring function to tissues or organs that have been damaged due to disease, trauma, or congenital issues. Many different types of cells are being explored for use in these therapies, including mesenchymal stromal cells (MSCs, which can be derived from bone marrow, cord blood or cord tissue, adipose tissue, placenta or other sources), hematopoietic stem cells, skeletal muscle stem cells, lymphocytes, induced pluripotent stem cells, and many others.

There are thousands of clinical trials underway to explore the use of RMCTs for many conditions, including cancer, cardiovascular disease, diabetes, degenerative joint conditions, neurological conditions, wound healing, and most recently, COVID-19.

The Need for Treatments and Cures

Several studies have shown that former NFL players demonstrate higher levels of osteoarthritis, cognitive impairment and neurodegenerative disease, chronic pain, depression, anxiety, and sleep apnea.

There is extensive interest in the potential of RMCTs for these and other conditions, as evidenced by the thousands of clinical trials listed in www.clinicaltrials.gov, many of which are conducted under FDA investigational new drug (IND) mechanisms. The FDA has approved CAR-T for cancer, gene therapy for certain forms of blindness and spinal muscular atrophy, and other regenerative medicine and cell therapy products. Clinical trials are underway to bring more options to patients. One recent systematic review indicates that there are more than 1,100 registered clinical trials using MSCs (61 percent of which are in Phase 2) to treat a range of conditions, the majority of which are focused on the fields of trauma, neurology, cardiology, and immunology.

Regenerative medicine and cell therapies are increasingly expected to serve as an alternative or complement to traditional treatments for patients in need, but additional information is needed to support patients as they navigate this emerging field.

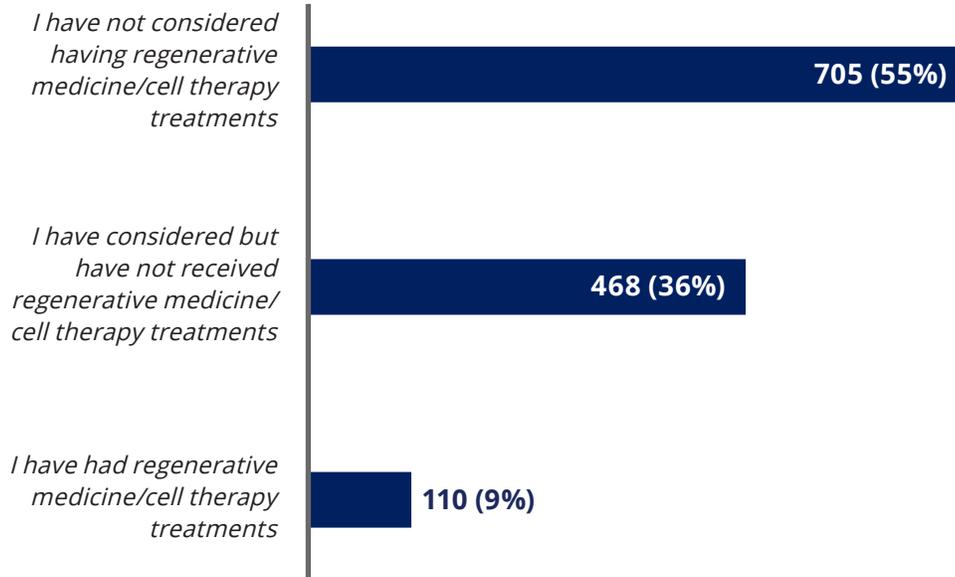


¹Rodriguez-Fuentes DE, Fernandez-Garza LE, Samia-Meza JA, Barrera-Barrera SA, Caplan AI, and Barrera-Saldena HA. Mesenchymal stem cells current clinical applications: a systematic review. *Archives of Medical Research*. 2020;572. Available at: <https://www.sciencedirect.com/science/article/pii/S018844092030638X>

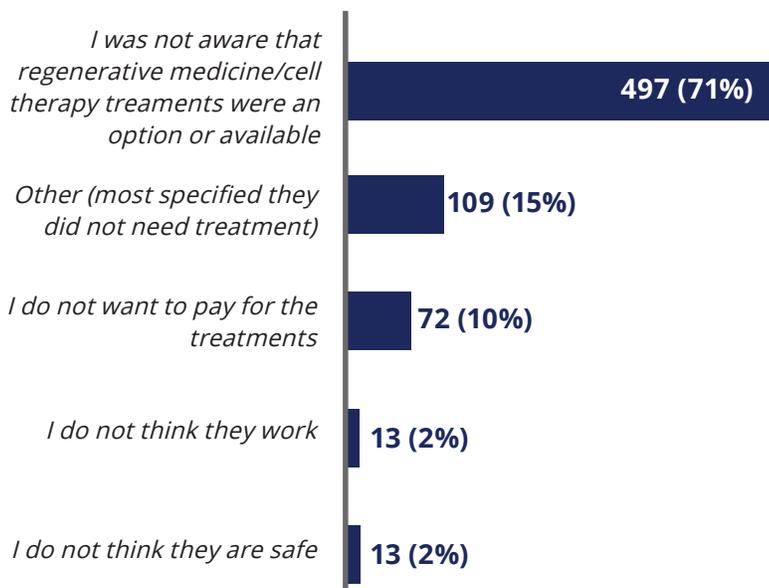
Nearly Half of NFL Alumni Have Considered These Therapies

Nearly half of NFL alumni respondents have considered regenerative medicine and cell therapy treatments

Nearly half of NFL Alumni respondents have considered RMCTs, including about nine percent of NFL Alumni respondents that have had these therapies, and 36 percent that have considered but have not yet received them. A little more than half—or 55 percent—have not considered RMCTs.



Majority of NFL alumni respondents who have not considered regenerative medicine or cell therapy were not aware that they were an option or available

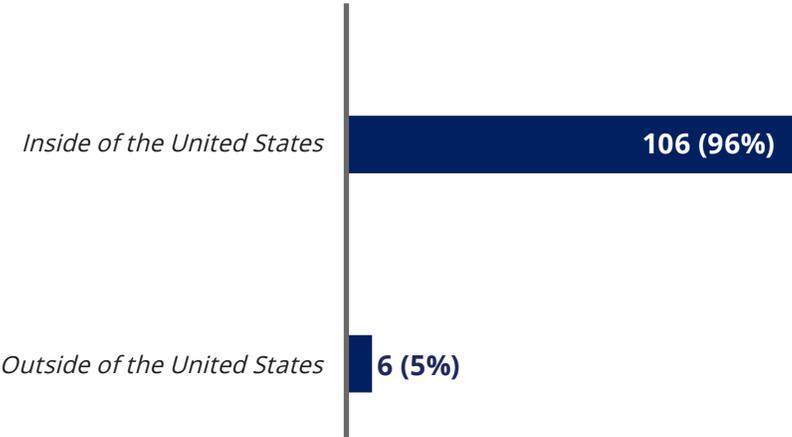


For those who have not considered RMCTs, the primary reason (71 percent) was the lack of awareness that they were an option or available. Ten percent cited cost as a barrier and 15 percent cited “other” reasons, mostly stating that they did not need treatment options. A small percentage of respondents (about two percent) cited concerns about effectiveness or safety.

Vast Majority of Treatments are in the U.S.

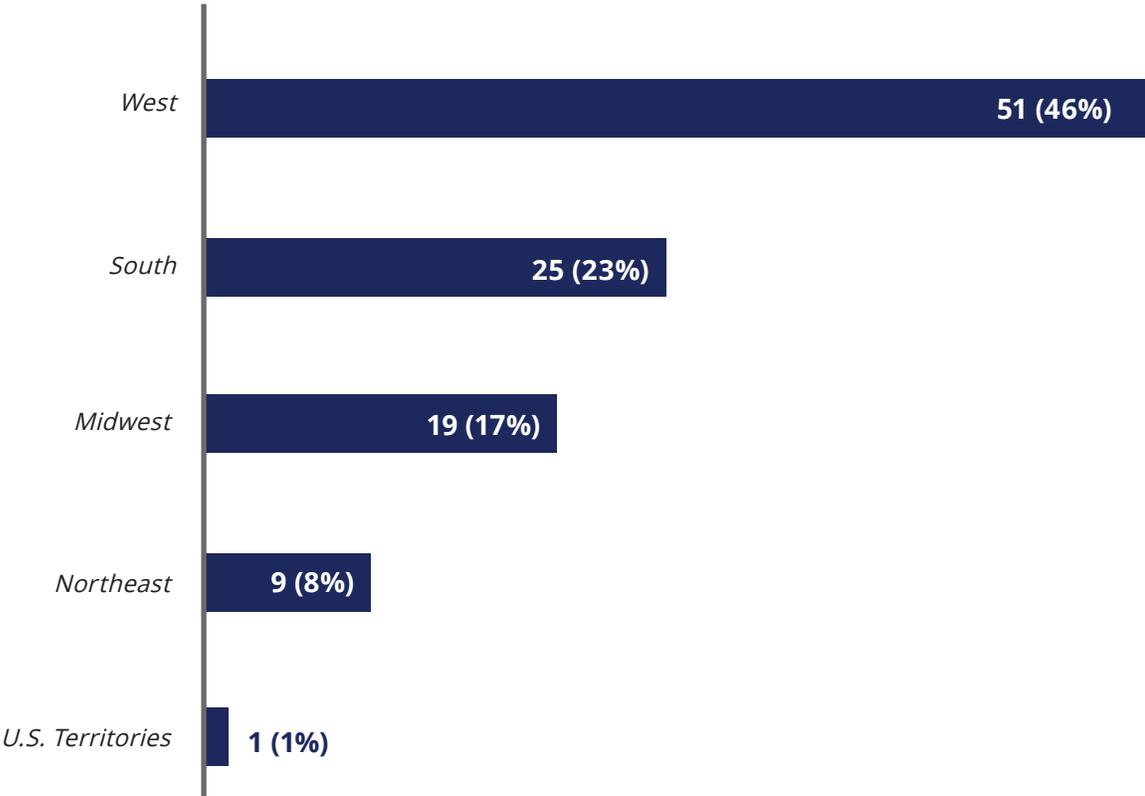
Ninety-six percent of the therapies received were acquired in the United States, primarily in the west (49 percent), followed by the south (24 percent) and the midwest (18 percent).

Vast majority of NFL alumni respondents receiving treatments received them in the United States



since multiple answers can be selected, percentages can add up to more than 100%

Majority of those receiving treatments in the United States received them in the western United States

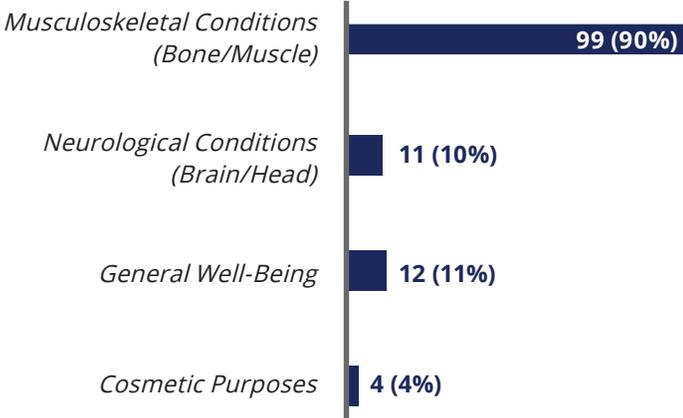


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Most Treatments are for Musculoskeletal Conditions

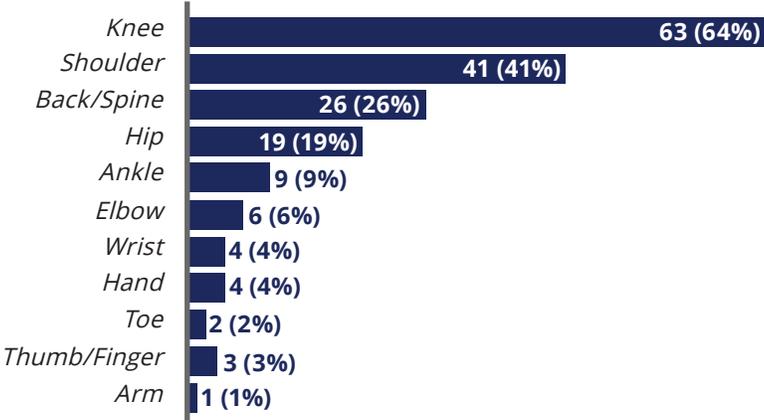
Majority of treatments for NFL alumni respondents were for musculoskeletal conditions

The vast majority of those who received treatments (90 percent) received them for musculoskeletal (bone or muscle) conditions. Ten percent received treatments for neurological (brain or head-related) conditions, while 11 percent received them for general well-being. It should be noted that some respondents received RMCTs for multiple conditions, and therefore percentages add up to more than 100 percent.



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Musculoskeletal conditions for which regenerative medicine or cell therapy treatments were received

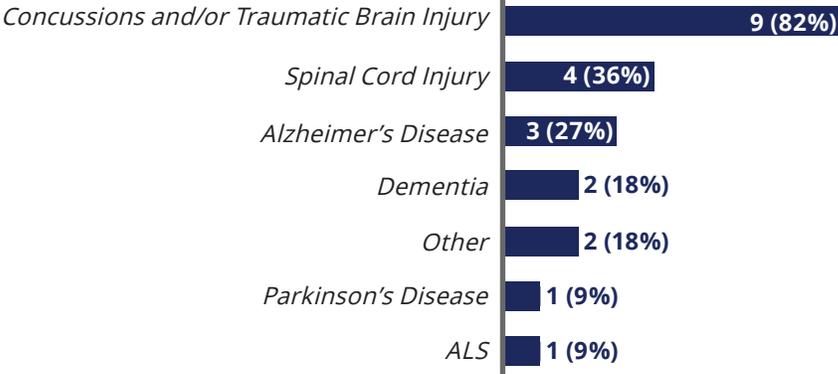


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For those who have received treatments for musculoskeletal conditions, most were for the knee (64 percent), the shoulder (41 percent), the back/spine (26 percent), or the hip (19 percent). Treatments were also received for the ankle, elbow, wrist, and hand.

Neurological conditions for which regenerative medicine or cell therapy treatments were received

For those who received treatments for neurological conditions, the vast majority received treatments for concussions or traumatic brain injury (82 percent), followed by spinal cord injury (36 percent).



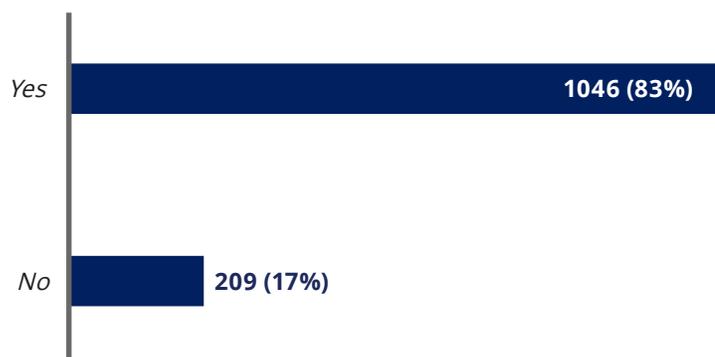
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What NFL Alumni is Doing to Help

Two-thirds of respondents stated that regenerative medicine and cell therapies addressed their concerns.

Importantly, the vast majority of respondents to the NFL Alumni survey—83 percent—expressed interest in learning more about regenerative medicine and cell therapies, including ongoing clinical trials.

Vast majority of NFL alumni respondents would like to learn more about regenerative medicine and cell therapies, including clinical trials



Over the coming months, NFL Alumni, in collaboration with Alliance for Cell Therapy Now, will provide NFL Alumni members with the educational resources they need to address their questions about RMCTs. These resources will help NFL Alumni members—as well as the general public—gain an understanding of:

- What RMCTs are, the science behind them, their benefits and risks, and the questions patients should be asking, before engaging in clinical trials and treatments for various conditions.
- The FDA-approved clinical trials that are available for various conditions, including musculoskeletal conditions and neurological conditions, as well as COVID-19.

These resources will come in the form of guides and briefs, podcasts, videos, blogs, and other materials that engage former NFL players and draw upon nationally recognized experts in the field.



Acknowledgements

About NFL Alumni

NFL Alumni was founded in 1967 and is the oldest and most recognizable national organization of retired professional athletes. NFL Alumni consists of former NFL players, coaches, executives, spouses, cheerleaders, and associate members. Part of NFL Alumni’s dual mission is “Caring for Kids”. Player alumni give back in their local communities by raising funds for youth-related charities through their 35 regional chapters. It is a tradition that has existed for more than 50 years. Alumni support typically raises more than \$1.5 million dollars for worthwhile causes. The other half of NFL Alumni’s mission, “Caring for our Own” is to serve, assist and inform its members and their families. Alumni members are offered a diverse package of wellness, business, career, and legal services to help members and their families be healthy, productive, and connected to one another. To learn more please visit: <https://www.nflalumni.org/>

About Alliance for Cell Therapy Now

Alliance for Cell Therapy Now (ACT Now) is an independent, non-profit organization guided by leaders representing numerous academic and medical institutions, industry innovators, and patients. ACT Now engages experts, researchers, and other stakeholders to expand the evidence base for regenerative medicine and cell therapies and develop and advance sound policies that will improve the development, manufacturing, and delivery of safe and effective therapies for patients in need. See <http://allianceforcelltherapynow.org/>

About Sanford Health

Sanford Health, one of the largest health systems in the United States, is dedicated to the integrated delivery of health care, genomic medicine, senior care and services, global clinics, research and affordable insurance. Headquartered in Sioux Falls, South Dakota, the organization includes 46 hospitals, 1,400 physicians and more than 200 Good Samaritan Society senior care locations in 26 states and 10 countries. Learn more about Sanford Health’s transformative work to improve the human condition at <https://www.sanfordhealth.org/> or Sanford Health News.

Acknowledgements

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