

## **NIH Funding Trends in Spinal Cord Injury Research: A Decade-Long Portfolio Analysis (2013 to 2023)**

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**INTRODUCTION:** Surgeon scientists remain underrepresented among recipients of National Institutes of Health (NIH) grants despite their unique ability to perform translational research. This study elucidates the portfolio of NIH grants awarded for spinal cord injury and the role of spine surgeons in this portfolio.

**METHODS:** Using the NIH Research Portfolio Online Reporting Tools Expenditures and Results (RePORTER) database (2013–2023), total NIH funding was extracted for 25 clinical areas. Compound annual growth rates (CAGRs) were then calculated for each, and data between clinical areas was compared. Grants regarding spinal cord injury, an existing clinical area in the NIH database, were further analyzed regarding funding IC, grant mechanism, clinical area of interest, and amount. A retrospective cohort study of principal investigators (PIs) was also conducted.

### **RESULTS:**

The total NIH research budget increased from \$29 to \$45 billion over the 10-year period (CAGR 4.5%). A total of 847 unique grants totaling almost \$986 million were awarded for spinal cord injuries from 2013-2023 (CAGR 0.42%). Dementia (\$21.7 billion), Alzheimer's Disease (\$20.6 billion), diabetes (\$12 billion), obesity (\$11.3 billion), and chronic pain (\$6.4 billion) received the most funding. Most NIH funding for spinal cord injury research was awarded through the R01 (57%) grant mechanism. The National Institute of Neurological Disorders and Stroke was the institute awarded the most NIH funding (67%). Departments of Neurology were awarded the most funding (32%). Disease mechanisms (46%) and therapeutics (42%) received the most funding. Surgeon scientists comprised 6% of all PIs. Males, MD/PhDs, full professors, and scientists had greater median NIH funding in their respective classifications. Statistical significance was found regarding PI sex ( $p < 0.001$ ), degree ( $p = 0.0435$ ), and academic rank ( $p < 0.001$ ) over the study period. However, no significant differences in NIH funding totals were found regarding PI archetype (e.g., scientist, clinician scientist, or surgeon scientist,  $p = 0.436$ ).

### **DISCUSSION AND CONCLUSION:**

Few surgeon scientists received NIH grants for spinal cord injury research, comprising only 6% of all PIs. Future opportunities may exist for spine surgeons to collaborate in identified areas of clinical interest. Additional strategies are needed to increase NIH funding in spine surgery. Furthermore, male sex, MD/PhD degrees, and full professorship were correlated with statistically significant increases in median NIH funding amounts for spinal cord injury research from 2013-2023.