

# Navigating the NIH-NSF Divide for Rehabilitation Researchers

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# How to decide which funding agency is for your project?



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# NIH vs NSF – Mission, Structure, Budget

## National Institutes of Health

- Seek fundamental knowledge about the nature and behavior of living systems and the application of that knowledge to **enhance health**, lengthen life, and reduce illness and disability
- Office of the Director and 27 Institutes and Centers
- \$41.7 billion

## National Science Foundation

- To promote the progress of science; **to advance the national health**, prosperity, and welfare; and to secure the national defense; and for other purposes.
- Office of the Director and 9 Directorates
- \$8.3 billion

# Rehabilitation Research Homes at NIH and NSF

## National Center for Medical Rehabilitation Research (NICHD)

- National Institute of Neurological Disorders and Stroke
- National Institute of Deafness and Other Communication Disorders
- National Institute of Arthritis and Musculoskeletal and Skin Diseases
- National Institute of Biomedical Imaging and Bioengineering
- National Institute on Aging
- National Institute on Nursing Research
- National Eye Institute

## NSF: ENG, SBE, CISE and EHR Directorates

- Biomechanics and Mechanobiology (BMMB)
- Cognitive Neuroscience (CogNeuro)
- Collaborative Research in Computational Neuroscience (CRCNS)
- Communications, Circuits, and Sensing-Systems (CCSS)
- Cyber-Human Systems (CHS)
- Cyber-Physical Systems (CPS)
- Disability and Rehabilitation Engineering (DARE)
- Engineering of Biomedical Systems (EBMS)
- Integrative Strategies for Understanding Neural and Cognitive Systems (NCS)
- Mind, Machine and Motor Nexus (M3X)
- Perception, Action, and Cognition (PAC)
- Smart and Connected Health (SCH)

# Research Priorities – Good Science!

## National Institutes of Health



## National Science Foundation

NSF does not have a central Rehabilitation Research Plan. Research goals are distributed across several forms of official NSF guidance:

- Program Descriptions
- Program Solicitations
- Dear Colleague Letters (DCLs)
- Official Communications from the Director (including the “10 Big Ideas”)
- NSF Reports

# Types of Award Mechanisms / Funding Opportunities

## National Institutes of Health

- Individual Predoc and Postdoc Fellowships (Fs)
- Institutional Training Awards (Ts)
- Career Development Awards (Ks)
- Research Project Grants (Rs)
  - Small (R03/R21/R15)
  - Large (R01)
- •Small Business
- •Loan Repayment Program

## National Science Foundation

- Workshop Grants
- Training Grants:
  - Research Experiences for Undergraduates (REU)
  - Graduate Research Fellowship Program (GRFP)
  - NSF Innovation Corps (I-Corps)
- Research Grants
  - Unsolicited
  - CAREER
  - EAGER; RAPID
  - SBIR / STTR
- Mid-scale Research Programs
  - ASCENT
  - LEAP-HI
- Major Research Instrumentation Grants
- Center Grants
- Supplements
  - REU, DESIGN, Career-Life Balance, etc.

# How to apply?

## National Institutes of Health

- Grants.gov and eRA Commons
- Funding Opportunity Announcement (FOA)
  - Parent Announcements
  - Requests for Applications
  - Notice of Special Interest
- Multiple Receipt Dates (usually 3 per year)

## National Science Foundation

- Fastlane.gov (recommended) or Grants.gov
- Proposals are submitted in response to:
  - Funding opportunities associated with Core Programs, within Divisions, housed under each Directorate
  - Program Solicitations
  - Dear Colleague Letters
- Submission Deadlines
  - No deadlines for Core Programs in ENG
  - Specified submission windows for Solicitations (Usually one or two per year)
  - See program or solicitation web page for specific details on submission deadlines
  - [In doubt? Contact a cognizant PD for clarification!](#)

# Human Subjects Research – Clinical Trials

## National Institutes of Health

- Broad Definition of Clinical Trial
- A research study in which one or more human subjects are prospectively assigned to one or more interventions (which may include placebo or other control) to evaluate the effects of those interventions on health-related biomedical or behavioral outcomes.
- Many policies, procedures, and reporting requirements

## National Science Foundation

- NSF permits limited use of human or animal studies for proof-of-concept, prototyping, and / or model parameter identification
- IRB and IACUC reporting requirements
- **In doubt? Contact a cognizant PD for clarification!**



# Peer Review

## National Institutes of Health

- *Emphasis on impact and approach*
- Program and Review are Separate
  - Need both an Institute and Review home
- Priority Score and Percentile
- “Not Discussed” – Still reviewed!
- Significance, Investigators, Innovation, Approach, Environment
- Resubmissions - allowed

## National Science Foundation

- *Emphasis on the Merit Review Criteria: Intellectual Merit and Broader Impacts*
  - *Five review elements:*
    - *Potential to advance knowledge and benefit society*
    - *Are the proposed activities creative, transformative?*
    - *Is the plan well-reasoned and well-organized?*
    - *Is the individual / team / institution well-qualified?*
    - *Are there adequate resources?*
- Program and Review are Together for each Funding Opportunity
- Binned and Ranked (within top categories)
- “Not Discussed” – Still reviewed!
- All new applications

# Award

## National Institutes of Health

- Paylines or/and discretionary zones
- Early Stage Investigators
- Annual progress reports and yearly award amounts
  - Institutional indirect costs are covered above and beyond the award's direct costs

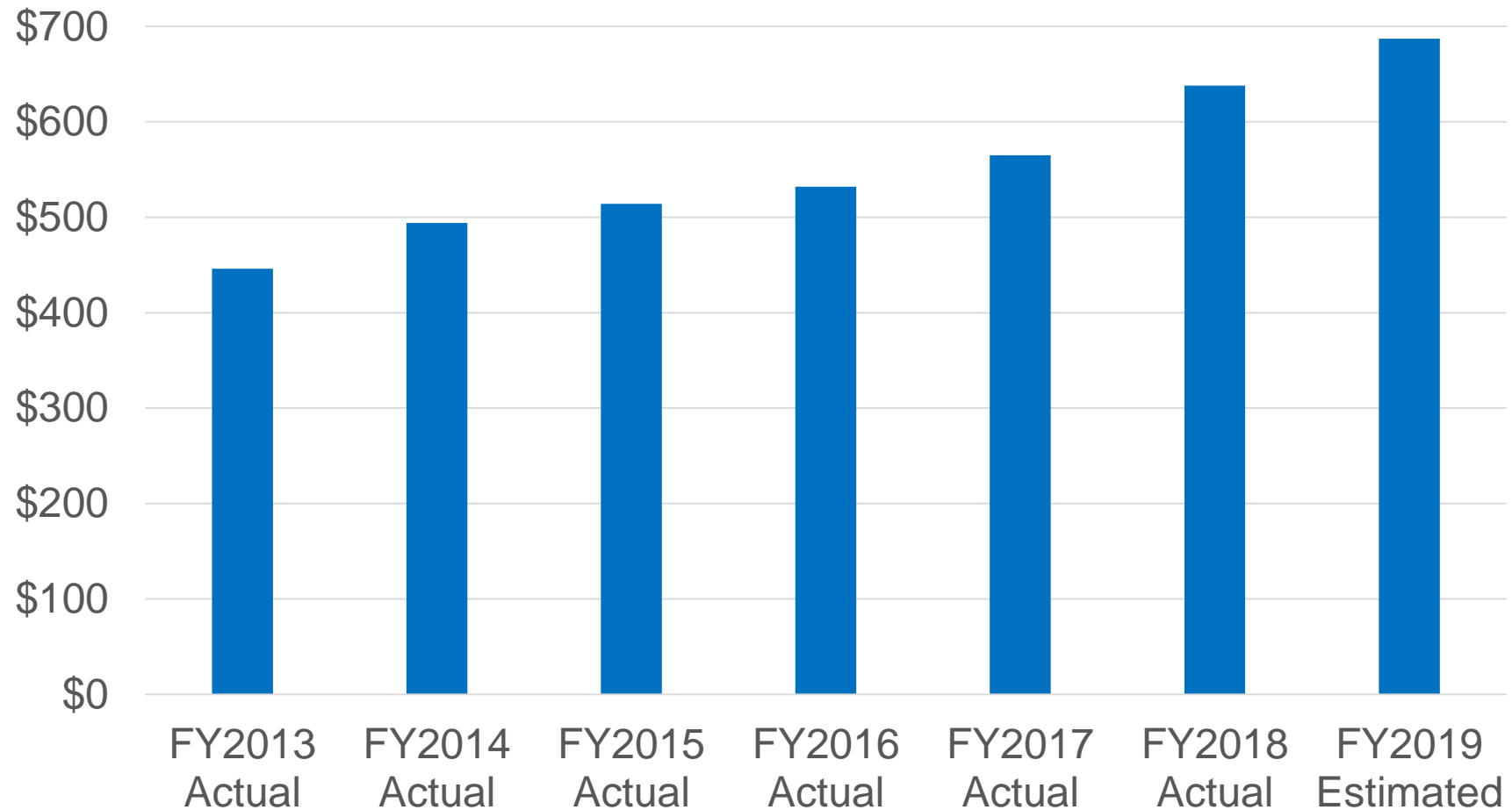
## National Science Foundation

- Programmatic Discretion
- Special Funding Opportunity for ESI:
  - CAREER
- Annual Progress Reports (all awards)
- Lump sum awards OR yearly award amounts – depends on the funding opportunity
  - NSF award totals are inclusive of institutional indirects
- PI Meetings - depends on the funding opportunity



# **NIH Resources and Announcements**

# Rehabilitation Funding at NIH



Funding data from [https://report.nih.gov/categorical\\_spending.aspx](https://report.nih.gov/categorical_spending.aspx); estimates are based on RCDC actual data, dollars reported are in millions and rounded.

# NCMRR Early Career Research Award (R03)

- Independent career but within 7 years post-degree
- Not yet PI on NIH Research grant (e.g., R01, R03, R15, R21, SBIR)
- Larger R03 budget, up to \$200,000 direct costs over 2 years
- Intent: to obtain sufficient preliminary data for a subsequent R01
- Single Annual Due Dates: March 30, 2020 / 2021 / 2022
  
- PAR-20-042 NCMRR Early Career Research Award  
<https://grants.nih.gov/grants/guide/pa-files/PAR-20-042.html>

# Pathways to Prevention: NIH Office of Disease Prevention (ODP) – March 30-31, 2020



NIH Pathways to Prevention Workshop:  
**Can Physical Activity Improve the Health of Wheelchair Users?**  
March 30-31, 2020

Register today!  
[prevention.nih.gov/P2P-PAforWheelchairUsers](https://prevention.nih.gov/P2P-PAforWheelchairUsers)

 National Institutes of Health  
Office of Disease Prevention

- NCMRR and NINDS received ODP support for a Pathways to Prevention Initiative
- Goal is to inform the Physical Activity Guidelines and increase the focus on health and wellness in this population
  - AHRQ is the systematic review and workshop partner
  - Federal partners meeting included multiple NIH ICs and VA, DoD, NIDILRR, and CDC

# Rehabilitation Research Conference

**Save the Date**

**October 15-16, 2020**

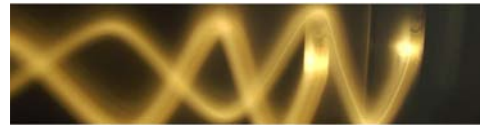
**Natcher Conference Center, NIH**

# Resources

## K12 – Institutional Training Awards



Rehabilitation Research Training



Rehabilitation and Restorative  
Neuroscience



Rehabilitation Engineering

**RRC**

Rehabilitation Research Career  
Development Program

Rehabilitation Research

## R25 – Grant writing and mentoring programs





# Research Infrastructure

Sites offer:

- State-of-the-art research facilities
- Courses and workshops
- Mentorship and consultations
- Pilot grants
- Other collaborative opportunities





# **NSF Resources and Announcements**

# Faculty Early Career Development Program (CAREER)

- The [Faculty Early Career Development \(CAREER\) Program](#) is a Foundation-wide activity that offers the NSF's most prestigious awards in support of early-career faculty who have the potential to serve as academic role models in research and education and to lead advances in the mission of their department or organization.
  - Hold a doctoral degree in a field supported by NSF
  - Be engaged in research in an area of science, engineering, or education supported by NSF
  - Hold at least a 50% tenure-track (or tenure-track-equivalent) position as an assistant professor (or equivalent)
  - Be untenured
  - Have not previously received a CAREER award
  - May not participate in more than 3 CAREER competitions; and
  - Associate Professors (or equivalent), with or without tenure, are not eligible for the CAREER program.

# NSF Programs Supporting Rehabilitation Research (1)

- **Collaborative Research in Computational Neuroscience (CRCNS):** supports collaborative activities that will advance the understanding of nervous system structure and function, mechanisms underlying nervous system disorders, and computational strategies used by the nervous system. Projects build on the theory, methods, and findings of computer science, neuroscience, and numerous other disciplines.
  - Joint with NIH and international partners
  - Must relate to computational neuroscience – from synapse through cognition/behavior
  - Can include clinically relevant projects
- **PD Contacts:** Ken Whang, PhD; [kwhang@nsf.gov](mailto:kwhang@nsf.gov); (703) 292-5149



# NSF Programs Supporting Rehabilitation Research (2)

- **Integrative Strategies for Understanding Neural and Cognitive Systems (CNS):** supports transformative, integrative projects that create synergistic links across investigators and communities, yielding novel ways of tackling the challenges of understanding the brain in action and in context. Projects are innovative, convergent, boundary-crossing, bold and risky, and transcend the perspectives and approaches typical of disciplinary research efforts. This cross-directorate program is one element of NSF's broader effort directed at Understanding the Brain, a multi-year activity that includes NSF's participation in the Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative.
  - NCS projects must advance the foundations of one or more of these focus areas:
    - *Neuroengineering and Brain-Inspired Concepts and Designs*
    - *Individuality and Variation*
    - *Cognitive and Neural Processes in Realistic, Complex Environments*
    - *Data-Intensive Neuroscience and Cognitive Science*
- **PD Contacts:** NCS Program Team; [ncs@nsf.gov](mailto:ncs@nsf.gov); (703) 292-2485



# Summary

When considering funding opportunities:

- Match to the mission, not the budget, but be creative
- Watch for large programs (BRAIN Initiative, HEAL Initiative)
- You can submit the same project to both funding agencies, but not get funding from both for the same project. Note also that applications need to be tailored to the target agency. Review panels are pretty good at sniffing out recycled (cross-submitted) applications, which are usually not looked upon favorably.
- **Talk to Program staff early!**
- There are many other federal research funders including the Veteran's Administration, DARPA, DoD, NIDILRR, AHRQ, etc.

# Questions?

