

The History and Impact of the UPMC RI Grant Program

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History of the UPMC RI Pilot Grant

The UPMC Rehabilitation Institute (RI) Pilot Grant program has been continuously funded from 2010 to present day, supporting 37 pilot grants (34 distinct investigators) with \$1,035,379 in funding from the School of Medicine Department of Physical Medicine and Rehabilitation (\$604,475), the School of Health and Rehabilitation Sciences (\$423,702), and in one year, the Aging Institute (\$7,202). **A full listing of all UPMC RI Pilot Grant awards is provided below.**

Principal Investigator Departments

Pitt/UPMC Department	n=37
Occupational Therapy	4 (11%)
Physical Therapy	7 (19%)
Rehabilitation Science & Technology	3 (8%)
Physical Medicine & Rehabilitation	18 (49%)
UPMC Rehabilitation Institute	
Occupational Therapy	2 (5%)
Physical Therapy	2 (5%)
Speech Language Pathology	1 (5%)

Principal Investigator Disciplines

Primary Discipline	n=37
Bioengineering/Rehab Engineering	9 (24%)
Occupational Therapy	6 (16%)
Neuroscience/Pharmacology	1 (3%)
Physical Medicine & Rehabilitation	7 (19%)
Physical Therapy	10 (27%)
Prosthetics & Orthotics	1 (3%)
Psychology	1 (3%)
Rehabilitation Counselling	1 (3%)
Speech Language Pathology	1 (3%)

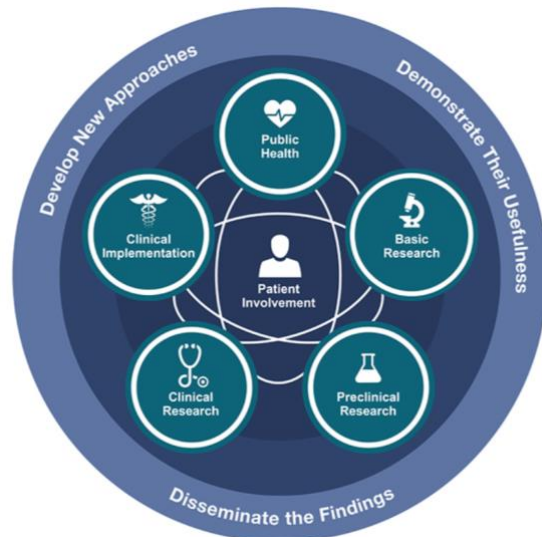
Three investigators received funding through the UPMC RI Pilot Grant program more than once (and thus are represented more than once in Tables 1, 2 and 3):

- Allyn Bove (SHRS PT) received \$6,234 in 15-17, and \$29,961 in 20-22
- Jennifer Collinger (PMR, Bioengineering) received \$49,850 in 10-12, and \$50,000 with an additional \$2,401 from the Aging Institute in 17-19
- Gary Galang (PMR, MD) received \$9,240 in 12-14, and \$4,800 from the Aging Institute in 17-19

Translational Science Spectrum

Translational Category	n=37
Basic Research	6 (16%)
Preclinical Research	5 (14%)
Clinical Research	19 (51%)
Health Services Research	3 (8%)
Clinical Implementation	4 (11%)
Public Health	0 (0%)

Note. Translational categories applied as defined at <https://ncats.nih.gov/translation/spectrum> with the exception that “clinical research” was split into two categories. “Clinical research” included everything as defined except for “health services research” to examine responsiveness to recent priorities.



<https://ncats.nih.gov/translation/spectrum>

New Products or Procedures Resulting from UPMC RI Pilot Grant

Product of Procedure	Respondents Endorsing Category
Publications	20 (54%)
Larger Grant Funding	14 (38%)
Invention Disclosure	2 (5%)
Provisional Patent	1 (3%)
Patent Application	2 (5%)
Copyright, License	3 (8%)
Clinical Practice Change	4 (11%)
No Products or Procedures Yet	4 (11%)

Listing of UPMC RI Pilot Grants

PI	Project Title	Amount	Start Date	End Date	Source
Skidmore	Strategy training to improve stroke rehabilitation outcomes	\$49,848	5/1/10	4/30/12	SHRS
Collinger	An acute electrocorticography (ECoG) brain-computer interface (BCI) for individuals with spinal cord injury	\$49,850	5/1/10	4/30/12	PM&R
Ambrosio	Electrical stimulation rejuvenates the regenerative potential of aged skeletal muscle in mice	\$50,000	5/1/10	4/30/11	PM&R
Breisinger Campbell	Sensitivity and specificity of the Stroke Assessment of Fall Risk (SAFR)	\$5,000	5/1/10	4/30/11	SHRS
Dicianno	Building specialty health homes through gain sharing	\$50,000	4/1/11	3/31/12	PM&R
Sowa	Unraveling intervertebral disc mechanobiology to facilitate rational design of exercise protocols	\$50,000	4/1/11	3/31/13	PM&R
Noone	The effect of a standardized bowel management program on functional independence	\$8,721	5/1/11	4/30/12	SHRS
Piva	Feasibility of a comprehensive behavioral intervention in total knee arthroplasty	\$50,000	4/1/11	9/30/12	SHRS
Farrokhi	Biomechanics and biomarkers of walking exercise in knee osteoarthritis	\$30,000	5/1/12	4/30/14	SHRS
Galang	Use of the ABS to assist with determining safety interventions in TBI patients	\$9,240	5/1/12	4/30/13	PM&R
Gaunt	Microstimulation of pelvic and pudendal afferents to restore bladder function	\$29,684	5/1/12	4/30/14	PM&R
Glosser	A sensory integrative approach to TBI Agitation: weighted lap pads and blankets	\$9,577	6/1/12	12/31/12	SHRS
Toto	TRANSITIONS: A new intervention for frail adults	\$30,000	6/1/13	5/31/15	SHRS
Timko	Reliability study for assessment of cranio-cervical junction hypermobility	\$27,500	6/1/13	5/31/15	SHRS
Josbeno	Quantifying physical activity in liver transplant candidates	\$22,500	5/1/14	4/31/15	SHRS
Jinks	Cognitive telerehabilitation	\$9,250	5/1/14	4/31/16	PM&R

Hartman	Mechanical parameters in spine rehabilitation: effects on disc cell metabolism	\$29,984	5/1/15	4/31/16	PM&R
Juengst	Development of the Behavioral Assessment Screening Tool	\$30,000	5/1/15	4/30	PM&R
Sethi	Combined brain and hand stimulation to improve hand function after chronic stroke	\$29,799	5/1/15	4/30/17	SHRS
Bondi	Efficacy of enrichment on executive dysfunction after frontal brain trauma	\$27,800	5/1/16	4/31/18	PM&R
Bove	Race disparities in total knee arthroplasty	\$6,234	5/1/15	4/31/17	SHRS
Hershberger	Telemedicine follow-up for individuals with DOC and their caregivers	\$9,500	5/1/15	4/31/17	PM&R
Wang	Psychometric properties of an assistive robotic manipulator evaluation tool	\$16,934	5/1/15	4/31/17	SHRS
Almeida	Associations between physical activity participation and plasma biomarkers in individuals with lumbar spinal stenosis - a secondary data analysis	\$49,122	7/1/17	6/30/19	SHRS
Collinger	Moving brain-computer interface success into stroke	\$50,000	7/1/17	6/30/19	PM&R
		\$2,402	7/1/17	6/30/19	Aging Institute
Galang	Video modeling for family training after traumatic brain injury	\$4,800	7/1/17	6/30/19	Aging Institute
Treble	Epigenetic influences on long-term neurobehavioral outcomes following pediatric TBI	\$30,000	7/1/18	6/30/20	PM&R
Urbin	Mechanisms of non-invasive vagus nerve stimulation underlying enhanced motor control in humans	\$30,000	7/1/19	6/30/20	PMR
Freburger	Disparities in rehabilitation care trajectories after orthopedic surgery	\$29,920	10/1/19	10/31/20	SHRS
Bendixen	Examining sleep and health-related behaviors in youth with pediatric neuromuscular disorders	\$5,000	7/1/19	6/30/20	SHRS
Bove	Rural access to physical therapy for osteoarthritis rehabilitation (RAPTOR)	\$29,961	7/1/20	6/30/22	SHRS
Dekleva	Long-term use of an intracortical brain-computer interface in the home	\$29,909	7/1/20	6/30/21	PMR
Kline	Combination therapy of intranasally delivered neural stem cells plus environmental enrichment after	\$30,000	7/1/20	6/30/21	PMR

	experimental brain trauma: A strategy to increase bench- to-bedside success				
Fielder	Smart glass-based feedback for gait rehabilitation training	\$29,820	7/1/20	6/30/22	SHRS
Chaitanya	Recto-perianal stimulation for selective activation of micturition and continence reflexes in lower urinary tract	\$29,570	7/1/21	6/30/22	PMR
Wagner	Social determinants of health as risk factors for mental health comorbidities after moderate to severe TBI	\$30,000	7/1/21	6/30/22	PMR
Hurwitz	Identifying barriers to care following lower extremity limb loss using a human centered framework	\$29,688	7/1/22	6/20/23	PMR

Publications Resulting from UPMC RI Pilot Grant Awards

Sowa GA, Coelho JP, Bell KM, Zorn AS, Vo NV, Smolinski P, Niyonkuru C, Hartman R, Studer RK, Kang JD. Alterations in gene expression in response to compression of nucleus pulposus cells. <i>Spine J.</i> 2011 Jan; 11(1):36-43.	PMID 21056011
Sowa G, Coelho P, Vo N, Bedison R, Chiao A, Davies C, Studer R, Kang J. Determination of annulus fibrosus cell response to tensile strain as a function of duration, magnitude, and frequency. <i>J Orthop Res.</i> 2011 Aug; 29(8):1275-83.	PMID 21671263
Hartman RA, Bell KM, Debski RE, Kang JD, Sowa GA. Novel ex-vivo mechanobiological intervertebral disc culture system. <i>J Biomech.</i> 2012 Jan 10; 45(2):382-5.	PMID 22099147
Sowa GA, Coelho JP, Vo NV, Pacek C, Westrick E, Kang JD. Cells from degenerative intervertebral discs demonstrate unfavorable responses to mechanical and inflammatory stimuli: a pilot study. <i>Am J Phys Med Rehabil.</i> 2012 Oct; 91(10):846-55.	PMID 22760106
Collinger JL, Wodlinger B, Downey JE, Wang W, Tyler-Kabara EC, Weber DJ, McMorland AJ, Velliste M, Boninger ML, Schwartz AB. High-performance neuroprosthetic control by an individual with tetraplegia. <i>Lancet.</i> 2013 Feb 16; 381(9866):557-64.	PMID 23253623
Wang W, Collinger JL, Degenhart AD, Tyler-Kabara EC, Schwartz AB, Moran DW, Weber DJ, Wodlinger B, Vinjamuri RK, Ashmore RC, Kelly JW, Boninger ML. An electrocorticographic brain interface in an individual with tetraplegia. <i>PLoS One.</i> 2013; 8(2):e55344.	PMID 23405137
Collinger JL, Kryger MA, Barbara R, Betler T, Bowsher K, Brown EH, Clanton ST, Degenhart AD, Foldes ST, Gaunt RA, Gyulai FE, Harchick EA, Harrington D, Helder JB, Hemmes T, Johannes MS, Katyal KD, Ling GS, McMorland AJ, Palko K, Para MP, Scheuermann J, Schwartz AB, Skidmore ER, Solzbacher F, Srikameswaran AV, Swanson DP, Swetz S, Tyler-Kabara EC, Velliste M, Wang W, Weber DJ, Wodlinger B, Boninger ML. Collaborative approach in the development of high-performance brain-computer interfaces for a neuroprosthetic arm: translation from animal models to human control. <i>Clin Transl Sci.</i> 2014 Feb; 7(1):52-9.	PMID 24039016
Skidmore ER. Activity interventions for cognitive problems. <i>Pediatr Blood Cancer.</i> 2014 Oct; 61(10):1743-6.	PMID 24113727
Skidmore ER, Dawson DR, Whyte EM, Butters MA, Dew MA, Grattan ES, Becker JT, Holm MB. Developing complex interventions: lessons learned from a pilot study examining strategy training in acute stroke rehabilitation. <i>Clin Rehabil.</i> 2014 Apr; 28(4):378-87.	PMID 24361347
Sowa GA, Coelho JP, Jacobs LJ, Komperda K, Sherry N, Vo NV, Preuss HG, Balk JL, Kang JD. The effects of glucosamine sulfate on intervertebral disc annulus fibrosus cells in vitro. <i>Spine J.</i> 2015 Jun 01; 15(6):1339-46.	PMID 24528900
Breisinger TP, Skidmore ER, Niyonkuru C, Terhorst L, Campbell GB. The Stroke Assessment of Fall Risk (SAFR): predictive validity in inpatient stroke rehabilitation. <i>Clin Rehabil.</i> 2014 Dec; 28(12):1218-24.	PMID 24849795
Almeida GJ, Wert DM, Brower KS, Piva SR. Validity of physical activity measures in individuals after total knee arthroplasty. <i>Arch Phys Med Rehabil.</i> 2015 Mar; 96(3):524-31.	PMID 25450127
Skidmore ER, Dawson DR, Butters MA, Grattan ES, Juengst SB, Whyte EM, Begley A, Holm MB, Becker JT. Strategy Training Shows Promise for	PMID 25505221

Addressing Disability in the First 6 Months After Stroke. <i>Neurorehabil Neural Repair</i> . 2015 Aug; 29(7):668-76.	
Piva SR, Farrokhi S, Almeida G, Fitzgerald G K, Levison TJ, DiGioia AM. Dose-Associated Changes in Gait Parameters in Response to Exercise Programs after Total Knee Arthroplasty: Secondary Analysis of Two Randomized Studies. <i>Int J Phys Med Rehabil</i> . 2015; 3(6):3-7.	PMID 25595665
Skidmore ER, Whyte EM, Butters MA, Terhorst L, Reynolds CF. Strategy Training During Inpatient Rehabilitation May Prevent Apathy Symptoms After Acute Stroke. <i>PM R</i> . 2015 Jun; 7(6):562-70.	PMID 25865090
Hartman RA, Yurube T, Ngo K, Merzlak NE, Debski RE, Brown BN, Kang JD, Sowa GA. Biological responses to flexion/extension in spinal segments ex-vivo. <i>J Orthop Res</i> . 2015 Aug; 33(8):1255-64.	PMID 26217546
Skidmore ER. Training to Optimize Learning after Traumatic Brain Injury. <i>Curr Phys Med Rehabil Rep</i> . 2015 Jun 01; 3(2):99-105.	PMID 26586856
Almeida GJ, Irrgang JJ, Fitzgerald GK, Jakicic JM, Piva SR. Reliability of Physical Activity Measures During Free-Living Activities in People After Total Knee Arthroplasty. <i>Phys Ther</i> . 2016 Jun; 96(6):898-907.	PMID 26893504
Tisherman R, Coelho P, Phillibert D, Wang D, Dong Q, Vo N, Kang J, Sowa G. NF- κ B Signaling Pathway in Controlling Intervertebral Disk Cell Response to Inflammatory and Mechanical Stressors. <i>Phys Ther</i> . 2016 05; 96(5):704-11.	PMID 27019858
Dicianno BE, Lovelace J, Peele P, Fassinger C, Houck P, Bursic A, Boninger ML. Effectiveness of a Wellness Program for Individuals With Spina Bifida and Spinal Cord Injury Within an Integrated Delivery System. <i>Arch Phys Med Rehabil</i> . 2016 11; 97(11):1969-1978.	PMID 27311718
Dunn MA, Josbeno DA, Schmotzer AR, Tevar AD, DiMartini AF, Landsittel DP, Delitto A. The gap between clinically assessed physical performance and objective physical activity in liver transplant candidates. <i>Liver Transpl</i> . 2016 10; 22(10):1324-32.	PMID 27348200
Hiremath SV, Tyler-Kabara EC, Wheeler JJ, Moran DW, Gaunt RA, Collinger JL, Foldes ST, Weber DJ, Chen W, Boninger ML, Wang W. Human perception of electrical stimulation on the surface of somatosensory cortex. <i>PLoS One</i> . 2017; 12(5):e0176020.	PMID 28217891
Farrokhi S, Jayabalan P, Gustafson JA, Klatt BA, Sowa GA, Piva SR. The influence of continuous versus interval walking exercise on knee joint loading and pain in patients with knee osteoarthritis. <i>Gait Posture</i> . 2017 07; 56:129-133.	PMID 28489913
Piva SR, Almeida GJ, Gil AB, DiGioia AM, Helsel DL, Sowa GA. Effect of Comprehensive Behavioral and Exercise Intervention on Physical Function and Activity Participation After Total Knee Replacement: A Pilot Randomized Study. <i>Arthritis Care Res (Hoboken)</i> . 2017 12; 69(12):1855-1862.	PMID 28544950
Almeida GJ, Terhorst L, Irrgang JJ, Fitzgerald GK, Jakicic JM, Piva SR. Responsiveness of Physical Activity Measures Following Exercise Programs after Total Knee Arthroplasty. <i>J Exerc Sports Orthop</i> . 2017; 4(3).	PMID 29160240
Bondi CO, Yelleswarapu NK, Day-Cooney J, Memarzadeh K, Folweiler KA, Bou-Abboud CE, Leary JB, Cheng JP, Tehranian-DePasquale R, Kline AE. Systemic administration of donepezil attenuates the efficacy of environmental enrichment on neurobehavioral outcome after experimental traumatic brain injury. <i>Restor Neurol Neurosci</i> . 2018; 36(1):45-57.	PMID 29303003
Juengst SB, Terhorst L, Dicianno BE, Niemeier JP, Wagner AK. Development and content validity of the behavioral assessment screening tool (BASTB). <i>Disabil Rehabil</i> . 2019 05; 41(10):1200-1206.	PMID 29439368

de la Tremblaye PB, Cheng JP, Bondi CO, Kline AE. Environmental enrichment, alone or in combination with various pharmacotherapies, confers marked benefits after traumatic brain injury. <i>Neuropharmacology</i> . 2019 02; 145(Pt A):13-24.	PMID 29499273
Degenhart AD, Hiremath SV, Yang Y, Foldes S, Collinger JL, Boninger M, Tyler-Kabara EC, Wang W. Remapping cortical modulation for electrocorticographic brain-computer interfaces: a somatotopy-based approach in individuals with upper-limb paralysis. <i>J Neural Eng</i> . 2018 04; 15(2):026021.	PMID 29910733
O'Neil DA, Nicholas MA, Lajud N, Kline AE, Bondi CO. Preclinical Models of Traumatic Brain Injury: Emerging Role of Glutamate in the Pathophysiology of Depression. <i>Front Pharmacol</i> . 2018; 9:579.	PMID 30035213
Gustafson JA, Anderton W, Sowa GA, Piva SR, Farrokhi S. Dynamic knee joint stiffness and contralateral knee joint loading during prolonged walking in patients with unilateral knee osteoarthritis. <i>Gait Posture</i> . 2019 02; 68:44-49.	PMID 30051757
Juengst SB, Terhorst L, Wagner AK. Factor structure of the Behavioral Assessment Screening Tool (BAST) in traumatic brain injury. <i>Disabil Rehabil</i> . 2020 01; 42(2):255-260.	PMID 30300230
Lajud N, Díaz-Chávez A, Radabaugh HL, Cheng JP, Rojo-Soto G, Valdéz-Alarcón JJ, Bondi CO, Kline AE. Delayed and Abbreviated Environmental Enrichment after Brain Trauma Promotes Motor and Cognitive Recovery That Is Not Contingent on Increased Neurogenesis. <i>J Neurotrauma</i> . 2019 03 01; 36(5):756-767.	PMID 30451025
Besagar S, Radabaugh HL, Bleimeister IH, Meyer EA, Niesman PJ, Cheng JP, Bondi CO, Kline AE. Aripiprazole and environmental enrichment independently improve functional outcome after cortical impact injury in adult male rats, but their combination does not yield additional benefits. <i>Exp Neurol</i> . 2019 04; 314:67-73.	PMID 30453143
Njoku I, Radabaugh HL, Nicholas MA, Kutash LA, O'Neil DA, Marshall IP, Cheng JP, Kline AE, Bondi CO. Chronic treatment with galantamine rescues reversal learning in an attentional set-shifting test after experimental brain trauma. <i>Exp Neurol</i> . 2019 05; 315:32-41.	PMID 30659800
Bleimeister IH, Wolff M, Lam TR, Brooks DM, Patel R, Cheng JP, Bondi CO, Kline AE. Environmental enrichment and amantadine confer individual but nonadditive enhancements in motor and spatial learning after controlled cortical impact injury. <i>Brain Res</i> . 2019 07 01; 1714:227-233.	PMID 30711647
Jayabalan P, Gustafson J, Sowa GA, Piva SR, Farrokhi S. A Stimulus-Response Framework to Investigate the Influence of Continuous Versus Interval Walking Exercise on Select Serum Biomarkers in Knee Osteoarthritis. <i>Am J Phys Med Rehabil</i> . 2019 04; 98(4):287-291.	PMID 30876859
Ignasiak D, Turner AW. Corrigendum to 'A novel method for prediction of postoperative global sagittal alignment based on full-body musculoskeletal modeling and posture optimization' [<i>J. Biomech.</i> (2019) https://doi.org/10.1016/j.jbiomech.2019.109324]. <i>J Biomech</i> . 2020 Mar 26; 102:109672.	PMID 32087842
Eldeeb S, Akcakaya M, Sybeldon M, Foldes S, Santarneckchi E, Pascual-Leone A, Sethi A. EEG-based functional connectivity to analyze motor recovery after stroke: A pilot study. <i>Biomedical Signal Processing and Control</i> . 2019;49:419-426.	
Dombrowski ME, Olsen AS, Vaudreuil N, Couch BK, Dong Q, Tucci M, Lee JY, Vo NV, Sowa G. Rabbit Annulus Fibrosus Cells Express Neuropeptide Y,	PMID 32252156

Which Is Influenced by Mechanical and Inflammatory Stress. <i>Neurospine</i> . 2020 Mar; 17(1):69-76.	
Diaz-Chávez A, Lajud N, Roque A, Cheng JP, Meléndez-Herrera E, Valdéz-Alarcón JJ, Bondi CO, Kline AE. Early life stress increases vulnerability to the sequelae of pediatric mild traumatic brain injury. <i>Exp Neurol</i> . 2020 07; 329:113318.	PMID 32305419
Hariharan KV, Terhorst L, Maxwell MD, Bise CG, Timko MG, Schneider MJ. Inter-examiner reliability of radiographic measurements from Open-mouth lateral bending cervical radiographs. <i>Chiropr Man Therap</i> . 2020 05 26; 28(1):32.	PMID 32450918
Treble-Barna A, Patronick J, Uchani S, Marousis NC, Zigler CK, Fink EL, Kochanek PM, Conley YP, Yeates KO. Epigenetic Effects on Pediatric Traumatic Brain Injury Recovery (EETR): An Observational, Prospective, Longitudinal Concurrent Cohort Study Protocol. <i>Front Neurol</i> . 2020; 11:460.	PMID 32595586
Lajud N, Roque A, Cheng JP, Bondi CO, Kline AE. Early Life Stress Preceding Mild Pediatric Traumatic Brain Injury Increases Neuroinflammation but Does Not Exacerbate Impairment of Cognitive Flexibility during Adolescence. <i>J Neurotrauma</i> . 2021 02 15; 38(4):411-421.	PMID 33040677
Minchew HM, Radabaugh HL, LaPorte ML, Free KE, Cheng JP, Bondi CO. A combined therapeutic regimen of citalopram and environmental enrichment ameliorates attentional set-shifting performance after brain trauma. <i>Eur J Pharmacol</i> . 2021 Aug 05; 904:174174.	PMID 33978153
Gutova M, Cheng JP, Adhikarla V, Tsaturyan L, Barish ME, Rockne RC, Moschonas EH, Bondi CO, Kline AE. Intranasally Administered L-Myc-Immortalized Human Neural Stem Cells Migrate to Primary and Distal Sites of Damage after Cortical Impact and Enhance Spatial Learning. <i>Stem Cells Int</i> . 2021; 2021:5549381.	PMID 34004206
Urbin MA, Lafe CW, Simpson TW, Wittenberg GF, Chandrasekaran B, Weber DJ. Electrical stimulation of the external ear acutely activates noradrenergic mechanisms in humans. <i>Brain Stimul</i> . 2021 Jul-Aug; 14(4):990-1001.	PMID 34122556
Dekleva BM, Weiss JM, Boninger ML, Collinger JL. Generalizable cursor click decoding using grasp-related neural transients. <i>J Neural Eng</i> . 2021 08 31; 18(4).	PMID 34154980
Derbyshire S, Field J, Vennik J, Sanders M, Newell D. "Chiropractic is manual therapy, not talk therapy": a qualitative analysis exploring perceived barriers to remote consultations by chiropractors. <i>Chiropr Man Therap</i> . 2021 11 25; 29(1):47.	PMID 34289456
Rayl KM, Fiedler G. Potential and Limitations of Feedback-Supported Gait Retraining in Users of Lower Limb Prostheses. <i>Prosthesis</i> . 2021;3(2):181-189.	
Bove AM, Hausmann LRM, Piva SR, Brach JS, Lewis A, Fitzgerald GK. Race Differences in Postacute Physical Therapy Utilization and Patient-Reported Function After Total Knee Arthroplasty. <i>Arthritis Care Res (Hoboken)</i> . 2022 01; 74(1):79-88.	PMID 34553507
Bove AM, Dong E, Hausmann LRM, Piva SR, Brach JS, Lewis A, Fitzgerald GK. Exploring Race Differences in Satisfaction With Rehabilitation Following Total Knee Arthroplasty: A Qualitative Study. <i>J Gerontol A Biol Sci Med Sci</i> . 2022 02 03; 77(2):e48-e55.	PMID 34823546
Ramanathan R, Firdous A, Dong Q, Wang D, Lee J, Vo N, Sowa G. Investigation into the anti-inflammatory properties of metformin in intervertebral disc cells. <i>JOR Spine</i> . 2022 Jun; 5(2):e1197.	PMID 35783910

Research Funding Resulting from UPMC RI Pilot Grant Awards

National Institutes of Health

- NIH R01HD074693, Closing the gap in stroke rehabilitation: early intervention for cognitive disability, \$2,350,441
NIH, R01HD074693 Supplement, Diversity Training Supplement, \$53,052
NIH, R01HD07693 Supplement, PECASE Supplement, \$433,410
NIH R01NS050256, Cortical control of a dexterous prosthetic hand, \$16,500 (sub within larger project)
NIH R01NS110609, Traumatic brain injury and aging: targeting the cholinergic system for deficits in sustained attention and executive function, \$1,833,571
NIH P30AG024827, Pittsburgh Older Americans Independence Center, \$86,000 (project as part of center renewal)
NIH U19AR076725, Healing LB3P: Profiling Biomechanical, Biological and Behavioral Phenotypes, \$16,756,172 (sub within larger project)
NIH R21 HD071810, iMHere: A Novel mHealth for Enhanced Wellness, \$81,376 (sub within larger project)
NIH R21 HD108462, Strengthening task specific activation of paretic hand muscles after moderate-to-severe chronic, \$220,550 (pending, but with 1st percentile score)
NIH R43 DP003948, Telewellness solutions for chronic conditions, \$150,000
NIH R03HD073770, Guided versus directed training in acute stroke rehabilitation, \$100,000
NIH R03HD094445, The Behavioral Assessment Screening Tool (BAST): psychometric validation and mobile health tool development, \$200,000
NIH K01HD097030, Epigenetic influences on neurobehavioral recovery following pediatric traumatic brain injury, \$643,276
NIH K12HD055931, Comprehensive Opportunities for Rehabilitation Research Training, \$90,661 (for K12 funded scholar)
NIH KL2 TR000146, Individualizing everyday activities, \$ 452,495 (for KL2 funded scholar)
NIH F31AT007114, Mechanobiology in cam: differential effects of amplitude mentor, \$124,140
NIH T32MH019986, Disability associated with mild cognitive impairment, \$ 111,092 (for T32 funded scholar)
NIH UL1TR001857, ENGAGE: Promoting participation and health for people with stroke-related disability and low income, \$25,000 (SPIRiT Pilot Award)
NIH UL1TR001857, Organizational variance and readiness for strategy training, \$50,000 (DIPSA Pilot Award)
NIH UL1TR001857, 3ST: artificial intelligence-based automated fidelity assessment for strategy training in inpatient rehabilitation, \$25,000 (QuMP Pilot Award)

Other Federal Agencies

- ACL/NIDILRR 90RE5018, Rehabilitation Engineering Research Center (RERC) on information & communication technology access, \$75,000 (sub within larger center)
ACL/NIDILRR 90DP5004, Rehabilitation Engineering Research Center (RERC) on information & communication technology access, \$141,020 (sub within larger project)
ACL/NIDILRR 90RTGE0002, Center for research, training, and dissemination of family support for people with disabilities across the life course, \$57,000 (sub within larger center)
ACL/NIDILRR 90RTGE0002, Center for research, training, and dissemination of family support for people with disabilities across the life course, \$117,114 (sub within larger center)
ACL/NIDILRR H133E090001/90RE5004-01-00, RERC on telerehabilitation, \$53,331 (sub within larger center)
ACL/NIDILRR 90DPGE0002, Innovation in disability empowerment and service delivery, \$2,468,221

ACL/NIDILRR 90DPKT004. Translating mHealth technology to a community service organization providing long term services and supports, \$992,684
ACL/NIDILR H133A120087, Rehabilomics: revolutionizing 21st century tbi care and research, \$10,373 (sub within larger project)
ACL/NIDILRR 90DP0064, Promoting independence and self-management with mHealth, \$211,533 (sub within larger project)
DARPA 972382, Revolutionizing prosthetics program, phase 3, \$2,062,564
DARPA NC66001-16-C-4051, Neural control of dexterous manipulation and translation to a portable system, \$2,451,064
PCORI CER-1310-06994, A comparison of treatment methods for patients following total knee replacement, \$2,003,652
VA RR&D B79863, Investigation of cortical changes following spinal cord injury, \$89,217
VA RR&D RX001464, Covert sensorimotor mapping for guiding brain-computer interfaces, \$824,130
VA Technology Transfer Program

International Agencies

Taiwan National Health Research Institute P25C108N, Enhancing community participation for stroke survivors with cognitive impairments (unfunded effort as international mentor to project)
Australia National Health and Medical Research Council 04443, Staying connected: Personalising stroke recovery and rehabilitation through new technologies for people with stroke living at home (unfunded effort as international consultant to project)

Foundation/Industry

Cervical Spine Research Society, Evaluation of metabolic changes with NSAID Treatment on Intervertebral Disc Matrix, \$15,000
Craig H. Neilsen Foundation, Telewellness support systems for spinal cord injury, \$300,000
Foundation for Physical Therapy Research, PODS II Award, \$15,000
Pittsburgh Foundation, Mechanical loading in spinal tissue remodeling and inflammation: more than just the disc, \$5,000
Pittsburgh Foundation, Do aged discs respond differently to mechanical loading? Insights into age related responses to compression, \$5,000
Pittsburgh Foundation, Metformin as a therapeutic tool to mitigate intervertebral disc response to stress, \$5,000
UPMC Children's Hospital, Motivational behavior and executive function in adolescent rats following pediatric brain injury: effects of chronic methylphenidate treatment, \$80,000
UPMC Health Plan, Preventing secondary medical conditions through gain sharing, \$24,568
Verizon Foundation Grant, Wireless technologies to enhance wellness, \$8,500
Wellspring Worldwide "What If" Award, Transforming health care with tele-wellness smartphone support systems, \$75,000

Source Unspecified

Ref. #1 25095, Ref. #2 01180, Long-term use of an intracortical brain-computer interface in the home, \$29,909

New Scientific Products, Practices Derived from UPMC RI Pilot Grant

Development of behavioral assessment screening tool that has since been validated and is currently being integrated into electronic and mobile health platforms

Facilitated new procedures for accessing, using UPMC Health System and UPMC Health Plan data for all subsequent projects

New Clinical Practices Derived from UPMC RI Pilot Grant

Improved clinical communication, screening, and documentation related to agitation, fall risk in brain injury rehabilitation

New guideline-based bowel management program implemented and sustained in spinal cord injury rehabilitation

New physical activity programs implemented by liver transplant program

New telerehabilitation cognitive training speech therapy program for UPMC Centers for Rehab Services continues with 100+ virtual visits per month. Greatly increased our reach to rural areas and underserved areas.

New Geriatric Function and Safety Assessment Program (GFSA) for UPMC Centers for Rehab Services that uses expert consultants to develop preventative, in-home occupational therapy intervention programs to promote aging in place under Medicare Part B.

Other Tangible Benefits Derived from UPMC RI Pilot Grant

Mentored undergraduate, masters, and doctoral theses/dissertations

Mentored medical student, resident, postdoctoral fellow and junior faculty projects