

## Craig Hospital Research Summary – 2020

### Mission Statement:

“To conduct high-quality research to promote optimal health, independence, and life quality for people affected by spinal cord injury and traumatic brain injury.”

### Core Values:

- Advance the state of the science of disability and rehabilitation research.
- Adhere to ethical and legal principles governing research activities.
- Conduct research and dissemination that is meaningful to our constituents.
- Involve individuals with disabilities and their families, the interdisciplinary treatment team, other professionals and community members, in the research and dissemination process.
- Integrate research in clinical practice, education and evaluation.
- Foster a research culture throughout Craig Hospital.
- Promote scientific enquiry that will contribute to evidence-based practice.
- Lead and participate in spinal cord injury and traumatic brain injury collaborative research.
- Participate in setting the national disability research agenda.

### Introduction:

The Craig Hospital Research Department currently has a staff of 27 with an annual budget of \$6.9 million in federal, state, and foundation-sponsored grants, devoted to conducting a wide variety of applied spinal cord injury (SCI) and traumatic brain injury (TBI) rehabilitation research. In addition, funds raised from the annual PUSH Dinner support clinical research.

The Research Department was established in 1974 when Craig Hospital was first awarded a Spinal Cord Injury Model System grant from the US Department of Health and Human Services, National Institute on Disability, Independent Living and Rehabilitation Research (NIDILRR). In 1998, Craig’s brain injury program received a similar designation when it was first named a TBI Model System. Each Model System project consists of a three-pronged research effort: contributing to a national longitudinal database, conducting local research projects that are of interest and importance to Craig, and collaborating with other Model Systems in research of common interest.

In 2006, Craig was named the TBI Model Systems National Data and Statistical Center, managing the TBI National Database and coordinating research among all TBI Model Systems. Perhaps the greatest benefit of the Model Systems programs is the research climate they have spawned here at Craig Hospital, giving us the expertise to successfully compete for and obtain funding from other sources as well.

Craig currently receives research funding not only from NIDILRR, but also from MindSource (formerly the Colorado TBI Trust Fund), the Congressionally Directed Medical Research Program (CDMRP) which is part of the Department of Defense, the Craig H Neilsen Foundation and other research organizations via subcontracts, and foundations. As research has become more important to the mission and reputation of Craig, the Research Department has increased collaboration with other institutions by leading and participating in multi-center research and becoming a national data coordinating center. Below is a list of Craig Hospital’s currently funded research projects.

PUSH dinner proceeds	2013 - ongoing
The purpose of Craig Hospital's Clinical Research Fund is to provide funding for clinical research projects. This includes startup funding to cover the clinician's time to design research projects, equipment if necessary, consultations, and costs to conduct the actual studies.	
Contact: <i>Susie Charlifue</i>	<i>303-789-8306</i>

**Spinal Cord Injury (SCI) Research**

<b>ROCKY MOUNTAIN REGIONAL SPINAL INJURY SYSTEM (SCI MODEL SYSTEM)</b>		
National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR)		2016 - 2021
Grant #: 90SI5015-01-00	PI(s): Charlifue, Coker	\$2,418,222

<b>Simvastatin to Improve Bone Health in SCI: A Double-Blind, Randomized, Placebo-Controlled Clinical Trial</b>		
This clinical trial led by Craig Hospital will determine whether a 12-month course of daily simvastatin 1) prevents bone loss in the paralyzed lower extremity, 2) promotes neurological recovery after SCI, and 3) reduces neuropathic pain after SCI.		
Contact: <i>Susie Charlifue</i>	<i>303-789-8306</i>	

<b>LEAD Module Project: Utilization of Complementary and Integrative Healthcare to Treat Pain in Persons with Spinal Cord Injury</b>		
The goal of this module project is to provide comprehensive information regarding utilization of complementary and integrative healthcare (CIH) to treat pain in people with SCI, and barriers and facilitators to utilization for people with SCI.		
Contact: <i>Jennifer Coker</i>	<i>303-789-8229</i>	

<b>Module Project: Using a Health Technology Assessment Framework for Evaluating the Utilization and Efficiency of Wearable Exoskeletons for SCI Rehabilitation</b>		
This collaborative SCI module led by the Rehabilitation Institute of Chicago will obtain evidence that informs consumers, clinicians, insurers, and manufacturers about the utilization and cost-effectiveness of RT-exo in inpatient, outpatient, and community settings.		
Contact: <i>Candy Tefertiller</i>	<i>303-789-8251</i>	

<b>Module Project: Residential Instability in Chronic SCI: An Investigation of Patterns and Consequences</b>		
This collaborative SCI module led by Northern New Jersey Spinal Cord Injury Model System (Kessler). The main objective of this exploratory project is to better understand residential instability among people with SCI and generate new knowledge on this potentially important and unexplored challenge to health, healthcare utilization, and independent living.		
Contact: <i>Susie Charlifue</i>	<i>303-789-8306</i>	

<b>Module Project: Impact of pain at follow-up in individuals with SCI</b>		
This collaborative module, led by University of Miami will characterize the type of pain in individuals with SCI, its location in the body, its intensity, and its interference with mood, sleep, work and daily function using the International SCI Pain Basic Data Set 2, as well as assess the pain treatment(s) used by individuals with pain and SCI.		
Contact:	<i>Susie Charlifue</i>	303-789-8306

<b>MULTI-SITE COLLABORATIVE RESEARCH PROJECT</b>		
National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR)		2017 – 2022
Grant #: 90DPHF0002-01-00	PI(s): Charlifue, Coker	\$2,500,000
Reinventing Yourself after SCI: A multi-site randomized controlled trial of an intervention to improve outcomes after spinal cord injury. Craig Hospital is the lead site in collaboration with Kessler and the University of Michigan aimed at increasing SCI-specific and general self-efficacy beliefs, enhancing emotional well-being, improving participation in society for people with SCI living in the community, and increasing resilience.		
Contact:	<i>Susie Charlifue</i>	303-789-8306

<b>LIFESTYLE INTERVENTION TARGETING ENHANCED HEALTH AND FUNCTION FOR PERSONS WITH CHRONIC SCI IN CAREGIVER/CARE-RECEIVER RELATIONSHIPS: EFFECTS OF CAREGIVER CO-TREATMENT</b>		
National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR)		2015 - 2021
Grant #: 90DP0074-01-00	PI(s): Charlifue	\$763,695
Lead Center: University of Miami – Randomized Clinical Trial to determine the efficacy of a lifestyle intervention to improve health and function of individuals with SCI.		
Contact:	<i>Susie Charlifue</i>	303-789-8306

<b>NEURORECOVERY NETWORK LOCOMOTOR TRAINING</b>		
Christopher and Dana Reeve Foundation		2012 – ongoing
PI(s): Tefertiller		
Activity based therapy involves using intense practice and repetition of task specific mobility activities with the goal of improving walking ability and functional independence in individuals with paralysis. The purpose of the national database is to identify demographic variables and quantify mobility outcomes as well as quality of life outcomes associated with participation in this activity based therapy program. The database is also analyzed to track individual treatment program performance compared to network-wide aggregate data.		
Contact:	<i>Candy Tefertiller</i>	303-789-8251

<b>SCI QOL VALIDATION</b>		
Craig H. Neilsen Foundation		2017 - 2020
PI(s): Charlifue		\$49,048
This study will assess the reliability and validity of the International SCI QoL Basic Data Set (SCI-QoLBDS), evaluating if there are differences in scores and understanding of items across languages and cultures.		
Contact:	<i>Susan Charlifue</i>	303-789-8306

<b>EFFECTS OF EKSO-ASSISTED GAIT TRAINING ON BONE HEALTH AND QUALITY OF LIFE: A RANDOMIZED CLINICAL TRIAL</b>		
Department of Defense		2017 - 2021
Grant #: W81XWH-15-2-0078	Site PI(s): Tefertiller	\$2,364,955
The purpose of this study is to determine whether exoskeleton-assisted gait training increases bone strength in the paralyzed lower extremity and improves quality of life after SCI. Secondly, to determine whether gait training improves the following related outcomes and mediators of quality of life: mood, pain, and cortical activity of related emotional networks in the brain.		
Contact:	<i>Candy Tefertiller</i>	<i>303-789-8251</i>

<b>DEVELOPMENT AND VALIDATION OF AN ABBREVIATED COGNITIVE SCREENING BATTERY FOR INDIVIDUALS WITH SCI</b>		
New Jersey State Department of Health/Spinal Cord Research		2019 – 2022
Grant #: CSCR19IRG021	PI(s): Coker	\$150,679
The purpose of this project is to validate the use of a brief, abbreviated cognitive screening battery, developed from established, common, motor-free neuropsychological tests that are sensitive to SCI-related cognitive impairment.		
Contact:	<i>Jenn Coker</i>	<i>303-789-8229</i>

<b>FUNCTIONAL MRI IN SCI PATIENTS WITH BELOW-LEVEL NEUROPATHIC PAIN</b>		
Craig Hospital Foundation		2018 - 2020
	PI(s): Falci	\$29,000
To Determine whether DREZ procedure changes cortical activity of emotional and pain processing networks in the brain. We will also determine if DREZ procedure improves the following related outcomes: mood, pain, quality of life.		
Contact:	<i>Susie Charlifue</i>	<i>303-789-8306</i>

<b>BRIVARACETAM TO REDUCE NEUROPATHIC PAIN IN CHRONIC SCI: A PILOT CLINICAL TRIAL</b>		
Neilsen Foundation/Craig Foundation SCI Research Fund		2020-2021
	PI(s): Falci	
Contact:	<i>Candy Tefertiller</i>	<i>303-789-8251</i>

<b>TRANSCUTANEOUS SPINAL CORD STIMULATION IN COMBINATION WITH MASSED PRACTICE TRAINING IN SPINAL CORD INJURY</b>		
Craig Hospital Foundation		2018 - 2020
	PI(s): Tefertiller	\$44,300
The primary objective of this study is to determine the feasibility and safety of using transcutaneous electrical stimulation in a clinical setting to promote neurological recovery in individuals with SCI. Our secondary objective is to collect pilot data assessing neurological and/or functional recovery due to transcutaneous electrical stimulation in individuals with chronic SCI.		
Contact:	<i>Candy Tefertiller</i>	<i>303-789-8251</i>

<b>VALIDATING THE INJUSTICE EXPERIENCE QUESTIONNAIRE IN A SPINAL CORD INJURY SAMPLE</b>		
Craig Hospital Foundation		2018 - 2020
	Site PI(s): Philippus	\$47,000
This study has two primary aims: (1) to validate the measurement model of the Injustice Experience Questionnaire in a sample of individuals with SCI, and (2) to test the reliability and validity of the IEQ in the same sample.		
Contact:	<i>Angie Philippus</i>	<i>303-789-8030</i>

<b>BIDETS FOR INDEPENDENCE AND QUALITY OF LIFE</b>		
Craig Hospital Foundation		2019-2020
	PI(s): Severe	\$13,018
The purpose of this study is to determine if utilization of a bidet could reduce the time to complete a bowel program, improve hygiene, decrease caregiver burden, and improve satisfaction/quality of life related to bowel routines. Additionally, bidet use may allow some individuals with spinal cord injury to achieve independence with their bowel program when, without the bidet, they have needed some caregiver assistance.		
Contact:	<i>Ellen Severe</i>	<i>303-789-8243</i>

<b>MRI AND MACHINE LEARNING TO IMPROVE EARLY PROGNOSIS AND CLINICAL MANAGEMENT AFTER SPINAL CORD INJURY</b>		
Regis University – Subaward		2019-2021
	PI(s): Berliner/Charlifue	\$13,565
Craig Hospital investigators are responsible for organizing and de-identifying the clinical data and consultation on data collection, data analysis, mentorship, and drafting of all abstracts and manuscripts.		
Contact:	<i>Jeffrey Berliner</i>	<i>303-789-8220</i>

<b>EXOATLET</b>		
ExoAtlet		2020-2021
	PI(s): Tefertiller	\$ 21,381.40
The purpose of this study is to evaluate the ExoAtlet 2 exoskeleton for safety and feasibility in the clinical setting in a group of individuals with a SCI who are non-ambulatory or have limited ambulatory function.		
Contact:	<i>Candy Tefertiller</i>	<i>303-789-8251</i>

<b>PREDICTIVE MODELING OF AMBULATORY OUTCOMES AFTER SPINAL CORD INJURY USING MACHINE LEARNING</b>		
Craig Foundation SCI Research Fund		2020-2021
	PI(s): Berliner	\$20,000
To use a machine learning algorithm to determine which 5-10 demographic and neurologic variables are the strongest predictors of future function, using a database of Craig Hospital patient encounters to predict ambulatory status among patients with AIS B/C SCI.		
Contact:	<i>Jeffrey Berliner</i>	<i>303-789-8220</i>

<b>ANTECEDENTS, CONSEQUENCES AND INTERVENTIONS FOR TRAVEL PARTICIPATION AFTER SCI</b>		
Neilsen Foundation		Years 2020-2023
	PI(s): Charlifue	\$100,000
This project aims to develop and test scales that measure travel participation of people with SCI, their satisfaction with autonomy, competence and relatedness through travel (Self-Determination Theory based scale development).		
Contact:	<i>Susie Charlifue</i>	<i>303-789-8306</i>

<b>BIOFEEDBACK FOR TREATMENT OF ANXIETY ASSOCIATED WITH CHRONIC SPINAL CORD INJURY</b>		
Neilsen Foundation		2019 - 2021
	PI(s): Monden	\$200,000
<p>The proposed pilot study is designed to find a signal of a treatment effect that would support a larger study and to examine the feasibility of conducting a larger study biofeedback intervention to treat anxiety in individuals with SCI. Biofeedback training monitors a person's breathing and heart rates and teaches them to slow their breathing to better match their heart rate. This type of training has been shown to strengthen a person's psychological resilience.</p>		
Contact:	<i>Angie Philippus</i>	<i>303-789-8030</i>

<b>CRAIG CAREGIVER ASSESSMENT OF REWARDS AND EFFORT (C<sup>2</sup>ARE) – VALIDATION OF A NEW TOOL TO ASSESS CAREGIVER DISTRESS AND BENEFIT</b>		
Neilsen Foundation		2019 - 2021
	PI(s): Charlifue	\$400,000
<p>The aim of the project is to validate C<sup>2</sup>ARE for assessing SCI caregiver distress and benefit. Validation will include extensive psychometric analysis of C<sup>2</sup>ARE data collected in a new large sample of SCI caregivers to fully evaluate its validity and test-retest reliability. Having a valid and reliable measurement tool specifically designed for use in SCI has the potential to be useful both in the clinical and research settings. Such an assessment can help clinicians and service providers better target their interventions to family caregivers, and will add to the resources that can be used by researchers to determine if caregiver intervention studies are effective.</p>		
Contact:	<i>Susie Charlifue</i>	<i>303-789-8306</i>

**Traumatic Brain Injury (TBI) Research**

<b>THE ROCKY MOUNTAIN REGIONAL BRAIN INJURY SYSTEM (TBI MODEL SYSTEM)</b>		
National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR)		2017 - 2022
Grant #: 90DPTB0007-01-00	PI(s): Harrison-Felix, Mellick, Tefertiller	\$2,295,000

<b>Self-Advocacy for Independent Life (SAIL) after TBI</b>		
PI(s): Hawley, Harrison-Felix		
This study will evaluate the efficacy of an intervention to empower people with TBI to improve their lives by gaining the skills to advocate for needed services and resources.		
Contact:	<i>Lenny Hawley</i>	<i>303-789-8570</i>

<b>LEAD Module Project: Development and Assessment of Crosswalks in the TBIMS Database</b>		
Using data from the National TBI Model System Database we intend to evaluate various procedures for creating crosswalks between the FIM™ and the Continuity Assessment Record and Evaluation (CARE) Item Set, as well as evaluate the existing crosswalk between the Patient Health Questionnaire (PHQ-9) and the Traumatic Brain Injury Quality-of-Life (TBI-QOL) Depression Short Form and between the Generalized Anxiety Disorder 7-item (GAD-7) scale and the TBI-QOL Anxiety Short Form.		
Contact:	<i>Dave Mellick</i>	<i>303-789-8563</i>

<b>Module Project: Caregiver Resilience: A Longitudinal Investigation</b>		
This collaborative TBI module led by Virginia Commonwealth University TBIMS focusing on resilience offers a promising opportunity to better understand and conceptualize caregivers' experiences after TBI and will allow us to gain a new and better understanding of how caregiver attributes, namely resilience, relate to survivor outcomes and caregiver burden and needs.		
Contact:	<i>Candy Tefertiller</i>	<i>303-789-8251</i>

<b>Module Project: Return to Driving after Moderate-Severe TBI: Who, When, Where and How Safe?</b>		
This collaborative TBI module led by the University of Alabama-Birmingham TBIMS intends to expand knowledge concerning driving behaviors for persons with a TBI and establish predictors of return to driving and safe driving.		
Contact:	<i>Candy Tefertiller</i>	<i>303-789-8251</i>



<b>THE TRAUMATIC BRAIN INJURY MODEL SYSTEMS (TBIMS) NATIONAL DATA AND STATISTICAL CENTER (NDSC)</b>		
National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR)		2016 – 2021
Grant #: 90DP0084-01-00	PI(s): Harrison-Felix, Mellick	\$3,412,500
The TBIMS NDSC manages the TBI Model Systems National Database and provides technical assistance, training, and methodological consultation to 16 centers and 3 follow-up sites as they collect and analyze longitudinal data from people with TBI in their communities, and as they conduct research toward evidence-based TBI rehabilitation interventions. A grant supplement was awarded in FY18-19 for \$100,000 to develop a plan to determine the prevalence of TBI by state and, within each state, the use of home and community based services by individuals with TBI.		
Contact:	<i>Dave Mellick</i>	<i>303-789-8563</i>

<b>TRAUMATIC BRAIN INJURY MODEL SYSTEMS (TBIMS) MULTI-SITE COLLABORATIVE RESEARCH PROJECT</b>		
National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR)		2018 – 2023
Grant #: 90DPTB0017-01-00	PI(s): Harrison-Felix, Richardson, Hoffman	\$3,127,000
Characterization and Treatment of Chronic Pain after Moderate to Severe TBI. Craig Hospital is the Lead site collaborating with 12 TBI Model Systems Centers and one VA TBI Model Systems Center to examine chronic pain and pain treatment after TBI to improve the health and function through improved patient stratification and treatment guidelines. Outcomes from this study will include educational materials on chronic pain and pain treatment to benefit patients, family members, clinicians, and policymakers. A grant supplement was awarded in FY18-19 for \$127,000 to improve the understanding of opioid use and pain management after moderate to severe TBI.		
Contact:	<i>Cindy Harrison-Felix</i>	<i>303-789-8565</i>

<b>BeHEALTHY- CHRONIC DISEASE MANAGEMENT FOR PEOPLE WITH TBI</b>		
National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR)		2020 - 2025
Grant #: TBA	PI(s): Harrison-Felix, Mellick	\$474,710
This collaborative project, led by Indiana University, leverages the substantial resources of the Traumatic Brain Injury (TBI) Model Systems and experts in collaborative care, self-management, state policy, and national consumer advocacy to develop a chronic disease management model for TBI, their caregivers, and health care providers. Craig will participate as a study site and overall study Data Collection Center.		
Contact:	<i>Cindy Harrison-Felix</i>	<i>303-789-8565</i>

<b>TRACK-TBI</b>		
NIH, National Institutes of Neurological Disorders and Stroke, and Department of Defense subcontracts from the University of California, San Francisco to Craig Hospital		2017 - 2020
	PI(s): Harrison-Felix	~ \$20,000
This is a collaboration with Denver Health in a longitudinal study of TBI that enrolls participants through Level 1 Trauma Centers across the US. Participants represent the entire spectrum of age, demographics, and injury severity. The overall goal of TRACK-TBI is to improve TBI classification/taxonomy for targeted clinical treatment trials, in order to improve TBI outcome assessments, such that the size and costs of clinical trials can be reduced, identify the health and economic impact of Mild TBI patient disposition, and create a legacy database with analytic tools and resources to support TBI research.		
Contact:	<i>Cindy Harrison-Felix</i>	<i>303-789-8565</i>



**ROLE AND NEUROANATOMIC BASIS OF CONCURRENT MEDICAL CONDITIONS IN OUTCOME FOLLOWING MODERATE TO SEVERE TRAUMATIC BRAIN INJURY: DEVELOPMENT OF A TBI-SPECIFIC INDEX**

Mindsources Brain Injury Network (formerly Colorado Brain Injury Research Program)	2017 - 2020
PI(s): Whiteneck	\$348,498
The goal of this project is to utilize data on co-occurring medical conditions to assess the impact of these conditions on outcome in traumatic brain injury. The study will incorporate a novel system for assessing the acuity of concurrent medical conditions to develop a TBI-specific index for use in brain injury research.	
Contact: <i>Gale Whiteneck</i>	<i>303-789-8204</i>

**DISCHARGE PLANNING AFTER TBI**

A grant to the University of Washington from the Patient-Centered Outcomes Research Institute (PCORI) with a subcontract to Craig Hospital as the Data Coordinating Center	2017 - 2022
PI(s): Mellick	\$382,823
This is a multi-center randomized control trial that aims to compare the effectiveness of Standardized Discharge Care (SDC) vs. Optimized Transition Care (OTC) on improving patient-reported outcomes of (1) participation, and health-related quality of life, for individuals with moderate-to-severe TBI who are discharged from inpatient rehabilitation	
Contact: <i>Dave Mellick</i>	<i>303-789-8563</i>

**DEVELOPMENT AND IMPLEMENTATION OF A TBI REGISTRY AND OUTREACH PROGRAM**

Administration for Community Living grant to Mindsources Brain Injury Network (formerly Colorado Brain Injury Research Program) with subcontract to Craig Hospital	2018 - 2021
PI(s): Eagye	\$60,000
The goal of this study is to analyze data from the TBI Surveillance System (in partnership with the Colorado Department of Public Health and Environment (CDPHE)) and the Craig prevalence study to develop a data-driven, targeted outreach and linkage program to be operationalized by Brain Injury Alliance of Colorado (BIAC).	
Contact: <i>CB Eagye</i>	<i>303-789-8557</i>

**COMPLEMENTARY AND INTEGRATIVE HEALTHCARE (CIH) UTILIZATION AND BARRIERS TO UTILIZATION IN PEOPLE WITH TBI**

Craig Hospital Foundation	2018 - 2020
PI(s): Coker	\$45,000
The goal of this study is to characterize the utilization of complementary and integrative healthcare (CIH) by people with traumatic brain injury (TBI), to identify barriers to utilization of CIH by people with TBI, and to determine the relationship between utilization of CIH and functional and psychosocial outcomes.	
Contact: <i>Jennifer Coker</i>	<i>303-789-8229</i>

**LANGUAGE DISORDERS IN TRAUMATIC BRAIN INJURY**

Craig Hospital Foundation	2019 - 2020
PI(s): Frey	\$16,315
The purpose of this study is to retrospectively investigate the incidence of aphasia in traumatic brain injury as well as the relationship between impaired language and orientation testing scores.	
Contact: <i>Kim Frey</i>	<i>303-789-8278</i>

<b>VIRTUAL REALITY AND TREADMILL TRAINING AFTER TRAUMATIC BRAIN INJURY</b>		
Craig Hospital Foundation/Alea Dye TBI Fund		2019 - 2020
	PI(s): Tefertiller	\$68,613
The primary goal of this study is to evaluate the safety and feasibility of using treadmill training augmented with virtual reality in a sample of individuals with chronic TBI and to provide data to support a fully powered randomized controlled trial in the future that would evaluate the efficacy of this intervention in TBI		
Contact:	<i>Candy Tefertiller</i>	<i>303-789-8251</i>

**Spinal Cord Injury (SCI) and Traumatic Brain Injury (TBI) Research**

<b>INCIDENCE/TIMING OF DIAGNOSIS OF VENOTHROMBOEMBOLISM IN THE TBIM AND SCI POPULATIONS</b>		
Craig Hospital Foundation		2017 - ongoing
	PI(s): Berliner	\$22,199
To assess the incidence of VTE in all patients admitted to Craig Hospital.		
Contact:	<i>Jeffrey Berliner</i>	<i>303-789-8220</i>

<b>MANUAL WHEELCHAIR CONFIGURATION FOR INDIVIDUALS WITH HEMIPLEGIA EFFECTS OF FRAME TYPE ON EFFICIENCY OF PROPULSION</b>		
Permobil		2019-2022
	PI(s): Tefertiller	\$16,279.21
The purpose of this industry-funded study is to address the importance of axle position and frame type on upper extremity propulsion. Understanding the effects of axle position and frame type on this propulsion technique is critical in assuring frame recommendations that maximize independence and life participation.		
Contact:	<i>Candy Tefertiller</i>	<i>303-789-8251</i>