



**UC DAVIS
HEALTH**

Biomechanics, Rehabilitation, and
Integrative Neuroscience (BRaIN) Lab

Current Clinical Research Studies

For more information, contact the BRaIN Lab at (530) 754-0653 or hs-brainlab@ucdavis.edu.

Study Title and Description	Age Group	Target Population
<p><u>BRaIN Lab Recruitment Registry¹: enrolling</u> The BRaIN Lab registry provides opportunity for anyone interested in participating in our research studies to self-enroll into our contact list. We contact people enrolled in the registry to provide information about our active studies that may be a good fit. The registry is a good starting point whether you are interested in participating in any of the studies listed below or wish to be kept informed about new studies as they become active. Duration: 8-10 minutes Location: online, link: is.gd/BRaINlabregistry</p>	18 and older	No restrictions—all individuals are welcome!
<p><u>iOS^{3,6}: enrolling</u> This study compares measurements from three wearable devices to develop measures of walking, mobility, and general health. Participation involves: providing health history and walking on level ground at multiple speeds, Duration: 30-45 minutes Location: BRaIN Lab, Davis Campus</p>	Healthy adults & Stroke Survivors (18 and older)	All individuals able to walk 15 meters, with or without assistance
<p><u>PAS – Paired Associative Stimulation²: enrolling</u> This project investigates the use of paired associative stimulation (PAS), a form of non-invasive brain stimulation, that promotes neuroplasticity. We will compare the effects of PAS delivered across three conditions to determine the most effective approach for improving walking function for stroke survivors. Duration: 2 sessions, ~4 hours each Location: BRaIN Lab, UC Davis Campus</p>	18 or older	Stroke survivors (≥ 6 months following cortical or subcortical stroke) resulting in hemiparesis ≥ 3 months chronicity
<p><u>Corticospinal Efficacy as a Prognostic Indicator of Walking Recovery Post-Stroke (CST Study)²: enrolling</u></p>	18 and older	Stroke Survivors (≥ 6 months following cortical or subcortical

<p>This research study assesses the relationship between mechanical and neurophysiological factors of walking after stroke with the goal of developing a predictive biomarker of walking recovery. Participation involves: evaluation of walking with motion capture, non-invasive brain stimulation (TMS), and functional tests. A subset of individuals will participate in a 6-week power training program focused on the leg muscles, with walking and functional evaluations at the beginning and end of 6-week training.</p> <p>Duration: Assessment only – 4-5 hours for walking evaluation, 1-2 hours for functional tests, may be scheduled separately or together. Training program – 18 training sessions, 90 minutes each (3 per week x 6 weeks) plus assessments (above) before and after training.</p> <p>Location: BRaIN Lab, Davis Campus</p>		<p>stroke), able to walk 15 meters with or without a device</p>
<p><u>Task-Failure Study^{2,3}: enrolling</u></p> <p>This study assesses manual dexterity and brain function during fatigue and recovery from fatiguing exercise. Participation involves: measurement of hand dexterity, grip strength, muscle activity, and completion of low-intensity grip exercise to fatigue.</p> <p>Duration: Single session, several hours.</p> <p>Location: BRaIN Lab, Davis Campus</p>	<p>18 and older</p>	<p>Healthy adults or Stroke Survivors, ≥6 months following cortical or subcortical stroke</p>
<p><u>Mobile Gait Assessment³: enrolling</u></p> <p>We are mobile! Meet us in- or outside of the lab for a quick walking assessment. The goal of this study is to develop a clinically accessible measurement of walking, mobility, and general health using mobile technologies. Participation involves: providing health history, a walking assessment, and assessments of general mobility.</p> <p>Duration: 30-45 minutes</p> <p>Location: Varies, contact us for upcoming locations</p>	<p>All ages</p>	<p>All individuals able to walk 15 meters, with or without assistance</p>
<p><u>Coordination of Human Walking³: enrolling</u></p> <p>This study assesses walking in healthy individuals. Participants may be asked to walk inside and outside of the motion analysis lab while wearing motion capture markers, inertial sensors, or both.</p> <p>Duration: Single session, 1-2 hours</p> <p>Location: BRaIN Lab, Davis Campus and Medical Campus, contact us for upcoming locations</p>	<p>18 and older</p>	<p>Healthy adults</p>

<p><u>HEBB – Human-robot Enabled system to induce Brain-Behavior adaptations⁴: enrolling</u></p> <p>This project will develop a robotic system to provide personalized, adaptive feedback and optimize motor learning and adaptation of walking behavior. Participation will involve walking on an instrumented treadmill with: a) real-time behavioral feedback, b) combined non-invasive brain and peripheral nerve stimulation to modulate brain activity, or c) both.</p> <p>Duration: 2 sessions: 1-2 hour adaptation session + 60 minute follow-up next day.</p> <p>Location: BRaIN Lab Davis Campus</p>	18 or older	Healthy adults
<p><u>WILD – Walking in the Living Domain⁵: enrolling</u></p> <p>A project to assess gait and mobility as a part of the UC Davis Healthy Aging in a Digital World Big Idea. Participation involves evaluation of gait and mobility using contactless methods. Participants will receive a printed report of their mobility function compared to age-referenced norms.</p> <p>Duration: 1-4 sessions, 30 minutes each</p> <p>Location: contact us for upcoming locations</p>	All ages	All individuals able to walk 15 meters, with or without assistance
<p><u>Watch here for new projects coming soon</u></p> <p>We are constantly developing new projects. Check here often to stay updated on research opportunities!</p>		

Project Support Provided By:

¹National Institutes of Health

²U.S. Department of Veterans Affairs, Rehabilitation R&D

³UC Davis School of Medicine

⁴National Science Foundation

⁵UC Davis Big Ideas

⁶UC Berkeley CITRIS and the Banato Institute