Magnetic Resonance Imaging (MRI) Facility

The MRI Facility features a Siemens Skyra 3 Tesla MRI scanner and capabilities for simultaneous use of a high-density electroencephalography (EEG) system and eye tracker. These technologies respectively provide understanding of the locations within the brain activated while processing information, the speed with which information is processed, and how information comes into the brain through the eyes. The MRI Facility is equipped with a MRI simulator, which mimics the sounds and experience of a MRI scan to help prepare some populations, such as children, for a real MRI. The MRI Facility is staffed with MRI technologists who operate the scanner.

Salivary Bioscience Laboratory (SBL)

The SBL is a Biosafety Level 2 (BSL-2) laboratory staffed and equipped to receive, inventory, assay, and archive biospecimens. The lab currently offers these services specific to saliva, with 19 biomarker assays available that provide information about stress response and immune function. Laboratory staff and faculty advisors also provide consultation in research design, human subjects protection, saliva sample collection, and grant writing as these activities pertain to salivary bioscience. The SBL maintains Center of Excellence status, which certifies that it meets rigorous collection, handling, and testing standards on par with Salimetrics, Inc.

Research Facilities and Technologies

In addition to the core facilities, CB3 houses shared behavioral testing rooms, computer labs, and conference rooms equipped for videoconferencing, as well as other research technologies maintained by CB3 resident faculty who collaborate with interested researchers.

- **Behavior Genetics Laboratory**
  Dr. Scott Stoltenberg

- **Computerized Dynamic Posturography**
  Dr. Julie Honaker

- **Event-Related Potential (ERP) Laboratory**
  Dr. Dennis Molfese

- **Eyetracking Equipment**
  Dr. Michael Dodd

- **functional Near Infrared Spectroscopy (fNIRS)**
  Dr. Steven Barlow

- **Psychophysiology Equipment**
  Drs. John Hibbing & Kevin Smith
Partnership with Nebraska Athletics

Sports-related concussions are a growing concern. Nebraska Athletics and CB3 partner to provide best-practice care for UNL student-athletes.

Recommended standard concussion protocols include symptom checklists, neurocognitive and balance assessment. Concussion measures must return to normal levels prior to any student-athlete returning to play; this is necessary to circumvent any cumulative injury during the recovery period. The partnership between Athletics and CB3 allows for close monitoring of neurocognitive and balance performance to aid in the decision process for safe return to play and return to learn.

Student-athletes participating in contact sports at UNL are evaluated before they begin their collegiate careers with 30-minute neurocognitive and 20-minute vestibular and balance protocols. Student-athletes diagnosed with a concussion repeat the same measures multiple times during the post-injury period. Neurocognitive measures evaluate cognitive processing speed and memory. Balance measures assess postural control, inner ear balance function, vision and eye movement.

For student-athletes who consent, de-identified concussion management data are retained for research aiming to better understand concussion incidence and recovery, and inform concussion management practices.

CB3 Faculty Conducting Concussion Assessments

Julie A. Honaker, Ph.D., CCC-A, is an associate professor and director of the Dizziness and Balance Disorders Lab in the Department of Special Education and Communication Disorders at UNL. She is a formally trained research audiologist who studies vestibular and balance sciences. Her research program is focused on clinical research and clinical decision analysis pertaining to patients with vestibular disorders, including vestibular and balance consequences post-head injury.

Arthur Maerlender, Ph.D., ABPP-CN, is a research associate professor, associate director of CB3, and director of clinical research and the Neuropsychology Specialty Clinic in CB3. He is certified by the American Board of Professional Psychology as a Clinical Neuropsychologist. His research focuses on the identification and treatment of sports-related concussion and mild traumatic brain injury (TBI). He aims to improve the system of care for TBI both at UNL and in the state.