from the **Director**

**Dr. William Paloski**

Standing, walking, and performing complex body movements are fundamental neuromotor control functions that help people thrive in today’s society. Degradation of these functions by injury, disease, or the aging process reduces the quality of life for increasing numbers of individuals and has become a significant public health issue.

The purpose of the University of Houston’s Center for Neuromotor and Biomechanics Research (CNBR) is to serve as a regional hub for multi-disciplinary research and technology development efforts that will enable us:

- To better understand the mechanisms and characteristics of neuromotor control functions in normal, elite, disabled, and at-risk populations
- To improve health care delivery and quality of life for community-dwelling individuals having reduced mobility, increased risk of falling, and/or movement coordination problems
- To improve the efficiency of programs for training and rehabilitating sensory-motor skills
- To train the next generation of research professionals in neuromotor control and the biomechanics of movement

The CNBR was established in the Texas Medical Center to bring its tools and experts in physiology and engineering closer to the physicians and patient populations benefiting from and collaborating in their translational research work.

**CNBR**

**Located in**

The National Center for Human Performance at the Texas Medical Center

John P. McGovern Campus
2450 Holcombe Boulevard
Houston, Texas 77021-2040

For more information:
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The University of Houston is an EEO/AA institution.
Control of posture and locomotion are complex functions that rely on coordinated interactions between the nervous system, the musculo-skeletal system, the cardiovascular system, and the environment. To study these functions, the CNBR brings together interdisciplinary research teams having expertise in physiology, engineering, clinical medicine, psychology, human factors, physics, mathematics, and computer science.

The CNBR research team welcomes new partnerships and collaborations with scientists and clinicians from university, government, or corporate entities. Please contact the director for more information.

The CNBR has available to research partners a full array of devices and software necessary to perform state-of-the-art investigations of the neurophysiology, muscle function, and biomechanics (kinematics, kinetics) of posture, gait, and other complex body movements.

Other capabilities associated with the Laboratory of Integrated Physiology (LIP) on the UH main campus include cardio-pulmonary functional testing equipment, plus a full array of equipment for assaying cellular and molecular markers of metabolism, stress, nutrition, immune function, and muscle performance.

CNBR researchers are currently developing training/rehab protocols for patients with complete spinal cord injuries and are investigating the use of virtual reality techniques in patients with movement disorders.

CNBR researchers are interested in better understanding of the mechanisms and characteristics of adaptation, learning, and performance optimization in the sensory-motor control systems underlying balance and locomotor function in humans through experimental and theoretical (modeling) studies.

CNBR researchers are also involved in research on how sensory-motor systems regulate hand and finger actions. This line of research includes clinical and laboratory-based evaluation of upper extremity function in both healthy and neurologically affected populations.

Research participants of all ages and both sexes, elite performers (e.g., athletes, musicians, astronauts), people disabled by neurological injuries (e.g., spinal cord, brain), orthopedic injuries or disease (e.g., Parkinson’s, Meniere’s, MS, diabetes), and community-dwelling individuals at increased risk of fall injury due to aging or obesity.

Research projects at the CNBR include participants of all ages and both sexes, elite performers (e.g., athletes, musicians, astronauts), people disabled by neurological injuries (e.g., spinal cord, brain), orthopedic injuries or disease (e.g., Parkinson’s, Meniere’s, MS, diabetes), and community-dwelling individuals at increased risk of fall injury due to aging or obesity.