Motion

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vania State University.

The L-shaped laboratory, which is filled with $111,000 of equipment and measuring devices, is inconspicuously located through a doorway at the far end of Marianjoy's large physical therapy room and occupies about 700 square feet.

The largest space is devoted to three small infrared cameras mounted on a tall tripod along one wall. The cameras capture the movement of small reflectors placed on the joints of a subject who walks or moves in front of them. The information about the movements is transferred to a special computer.

A few steps to the right, three desks define the perimeters of a small area the size of a hospital elevator. A tilt board is centered on the floor.

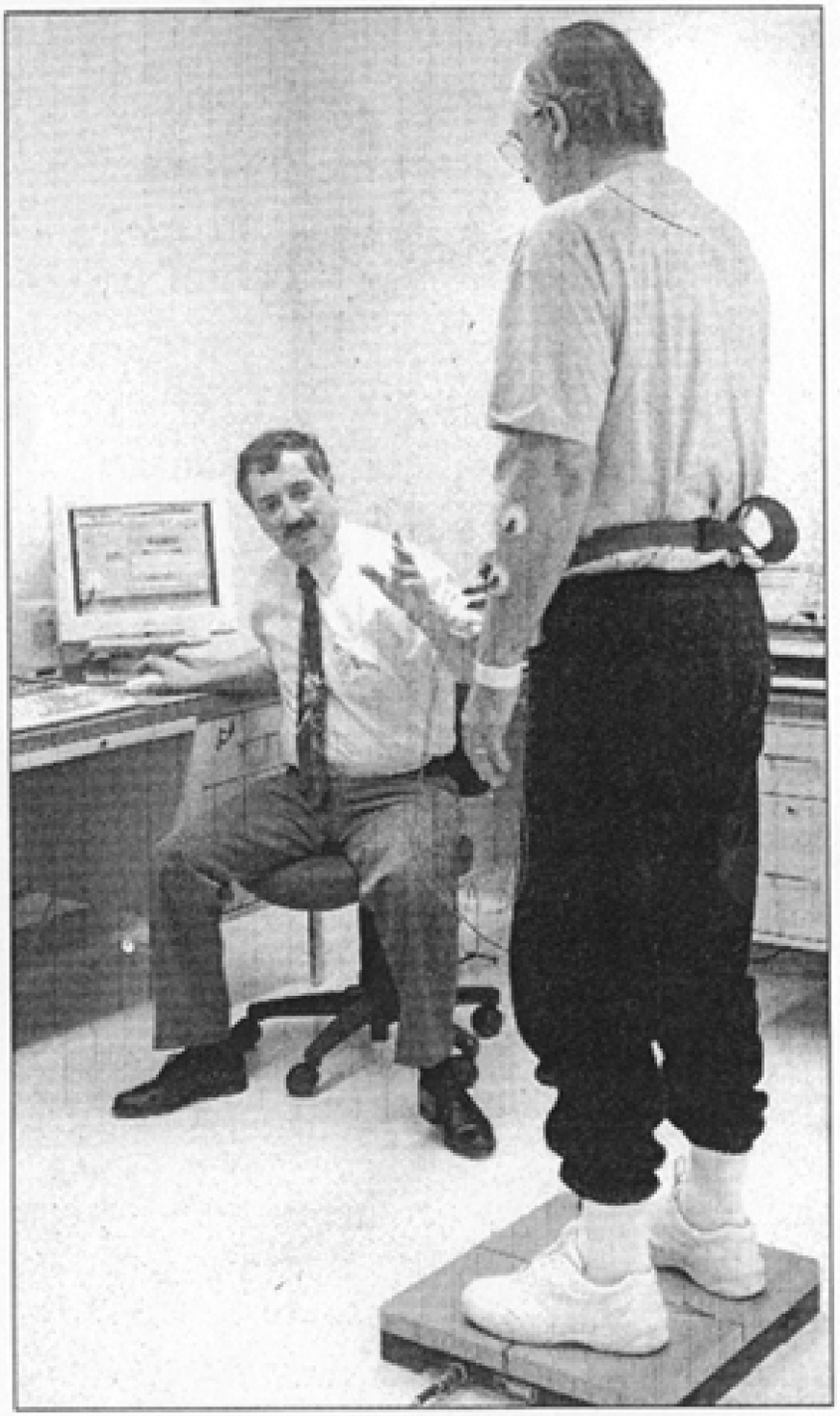
Dangling from two of the desks are dozens of electrodes that, when attached to a patient, gauge muscle activity. The third desk holds a computer whose software will be used to design and record the hundreds of possible experiments combining force production on the tilt board with the activity of the muscles. The muscle activity tells how the central nervous system is working.

"The motion (captured by the cameras) is the effect, " said Tim Hanke, chairman of physical therapy for RehabLink. "The production of force and the production of the muscle activity is the cause. They are pieces to a puzzle that tells us what is going on within the neuromuscular system.

"This is a research lab for the study of normal and abnormal movement of human beings, to develop treatment approaches that will improve the function of individuals with disabilities," said Hanke, whose role as chairman is to conduct and facilitate research at Marianjoy. He is actively involved in research projects on movement function and dysfunction, including those being conducted in the new laboratory.

"We are studying the underlying problems that these individuals could have" he said. "By understanding those problems that our subjects are facing, we can test treatment ideas in order to see if they will improve their movement performance.

"For example, we might know that a person who has a stroke stands asymmetrically because they are weak on one side." Hanke said. "We may calculate all of those problems in a motion analysis lab. But as part of a research project, we can try new treatment approaches to try to get them to use the limb more, to weight bear more, and then again measure that in this lab to see if these new treatment ideas are in effect worthwhile."



Tribune photo by Ed Wagner

Dr. Alex Aruin of the Motion Analysis Lab tests Thomas Lennon on the biomechanical platform.