

Biomedical Engineering

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Core Faculty Profile

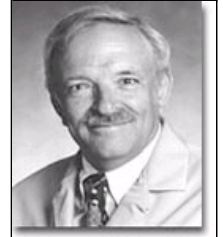
William Z. Rymer

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William Z. Rymer

Research Interests

Neural control and mechanics of movement in normal and neurologically impaired human subjects.

My research concerns regulation of movement in normal and disordered human subjects. These studies are conducted at the Rehabilitation Institute of Chicago, and they are directed toward an understanding of skeletomotor reflex function in patients with disorders of muscle tone; another research area is physiological effects of spinal cord injury. Using electrophysiological, pharmacological and morphological techniques, we are studying the sources of altered motoneuronal responses in spinal segments below a partial or complete spinal cord transection. Our objectives are to identify the key transmitters and/or neuromodulators responsible for altered responses and to develop compounds that may counteract these abnormalities in human subjects.

Selected Publications

1. Krylow, A.M. and Rymer, W.Z. (1997) Role of intrinsic muscle properties in producing smooth movements. *IEEE Trans. Biomed. Eng.* 44: 165-176.
2. Reinkensmeyer, D.J., Dewald, J.P.A. and Rymer, W.Z. (1996) Robotic devices for physical rehabilitation of stroke patients: Fundamental requirements, target therapeutic techniques, and preliminary designs. *Technology and Disability* 6: 205-215.
3. Dewald, P.A., Given, J.D., Rymer, W.Z. (1996) Long-lasting reductions of spasticity induced by skin electrical stimulation. *IEEE Trans. Rehabil. Eng.* 4: 231-242.
4. Dewald, J. P. A., Pope, P.S., Given, J.D., Buchanan, T.S., Rymer, W.Z. (1995) Abnormal muscle coactivation patterns during isometric torque generation at the elbow and shoulder in hemiparetic subjects. *Brain* 118: 495-510.

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