Nonlinear Analysis of Electromyography Time Series of Low Back Muscles ULRICH ZURCHER, KAUFMAN MIRON, PAUL SUNG, Cleveland State University — We have calculated the mean-square displacement $\Delta(t)$ from the EMG time series and have found that increases diffusively, $\Delta(t) \sim t$, for short times $t < 10$ms, and shows a plateau-like behavior, $\Delta(t) \sim t^0$, for interintermediate times $10\,\mathrm{ms} < t < 0.5, \mathrm{s}$. The plateau-like behavior implies the presence of correlations in the signal. We characterize these correlations and relate them to properties of the power spectrum of the signal.

Ulrich Zurcher
Cleveland State University

Electronic form version 1.4