

**Paper ID:** 198

**Paper Title:** ToeTronics: a portable device measuring the toe extensor strength

**Abstract:** ToeTronics is a portable device features an intuitive, comfortable, and lightweight design that measures the force produced by the great toe extensors. This will enable healthcare providers to monitor patients' toe strength more closely and make better informed decisions about treatment for conditions including cancer, diabetes, vascular disease, and distal neuropathies or myopathies of any etiology. ToeTronics presents a shoe-like design to facilitate the intuitive use of its objective, accurate and reproducible sensor, quantifying toe extensor strength at its peak and over time (for the functionally relevant estimation of muscle or nerve fatigue). The shoe-like design and adjustable strap system allow the limb to be consistently positioned and stabilized to optimize reliability of test results. ToeTronics device does not require the test administrator to exert force against the patient, making it much more objective than the current evaluation methods, and comparable between different physicians and therapists. Further, it has great sensitivity therefore small differences in strength can be measured to allow precise clinical monitoring not available with current methods.

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