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A review of differences between styles of manual muscle testing and methods of objectively documenting the changes seen in response to AK challenges.

“Break” tests evaluate the muscle’s ability to resist a gradually-increasing pressure and may test different aspects of neuromuscular control than tests against fixed resistances. Applied kinesiologists use sub-maximal manual break tests and a binary grading scale to test short-term changes in muscle function in response to challenges. Maximum Voluntary Isometric Contraction testing against a fixed force transducer is more sensitive than manual testing to small degrees of change in muscle strength over time, as in progressive neurodegenerative diseases. Manual “make” testing with a dynamometer approximates MVIC, in that the subject presses against a relatively fixed resistance. “Make” testing requires that the tester be stronger than the tested muscle.

Within AK, “doctor-initiated testing” MMT is “break” testing, while “patient-initiated” testing approximates “make” testing. The latter appears to be of longer duration and sometimes yields different results from “doctor-initiated” break testing.

Hand-held dynamometry measures the force generated by a muscle. To be meaningful, the shape of the force curve must be evaluated, not simply peak force. Peak force may be equivalent or higher in “weak” muscles than in strong muscles.
Cybex or isokinetic testing, while yielding a considerable amount of data, is cumbersome and does not exactly parallel what is done in manual testing.\textsuperscript{xii,xiii}

Electromyography (EMG) measures the firing of muscle fibers but suffers from difficulties of replicability and norming.\textsuperscript{xiv,xv,xvi} Muscles that test weak manually demonstrate less efficient contractions on EMG.\textsuperscript{xvii}

The emerging field of vibromyography\textsuperscript{xviii} may help us to document the rapid changes in muscles seen following AK challenges.

**Conclusions:** To increase the chances for replication, studies using MMT should specify parameters of the manual tests used, such as exact procedures and instrumentation, duration of test, peak force, and timing of application of force. It is hoped that further investigation with EMG or vibromyography will clarify the physiology of muscle phenomena observed in A.K. such as muscles which weaken following stretch, maximum contraction, repeated contraction, etc.

**MeSH Terms:** Muscle Strength; Muscle Strength Dynamometer; Muscle Contraction; Kinesiology, Applied; Instrumentation; Methods.

\textsuperscript{iv} Walther DS. Applied kinesiology synopsis. 2\textsuperscript{nd} ed. Pueblo, CO: Systems DC; 2000.


