

Long-term outcome of muscle strength in ulnar and median nerve injury: comparing manual muscle strength testing, grip and pinch strength dynamometers and a new intrinsic muscle strength dynamometer. Schreuders TA, Roebroek ME, Jaquet JB, Hovius SE, Stam HJ. J Rehabil Med. 2004 Nov;36(6):273-8.

Abstract

OBJECTIVE:

To compare the outcome of muscle strength with manual muscle strength testing grip and pinch strength measurements and a dynamometer which allows for measurements of the intrinsic muscles of the hand in isolation (the Rotterdam Intrinsic Hand Myometer RIHM).

METHODS:

Thirty-four patients more than 2 years after ulnar and/or median nerve injury. Muscle strength was evaluated using manual muscle strength testing (MMST), grip, pinch and intrinsic muscle strength measurements.

RESULTS:

Manual muscle strength testing showed that most muscles recover to grade 3 or 4. Average grip strength recovery, as percentage of the uninjured hand, was 83%. Pinch strength recovery was 75%, 58% and 39% in patients with ulnar, median and combined nerve injuries, respectively. The RIHM measurements revealed a poor recovery of the ulnar nerve innervated muscles in particular (26-37%). No significant correlation (Pearson) was found between the measurements of the RIHM and grip strength. Pinch strength was significantly correlated with strength of the abduction of thumb and opposition of the thumb strength (r 0.55 and 0.72, p = 0.026, 0.002) as measured with the RIHM.

CONCLUSION:

While manual muscle strength testing and grip strength measurements show a reasonable to good recovery, measurements of the intrinsic muscles by means of the RIHM showed poor recovery of intrinsic muscle strength after peripheral nerve injury. No correlation was found between the recovery of intrinsic muscle strength and grip strength measurements