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Purpose: The purpose of this study was to search and appraise the current evidence related to the psychometric properties of the Patient-rated Wrist Evidence (PRWE).

Background: The PRWE is a commonly used outcome measure for assessing pain and functions in patients with different wrist/hand injuries. Previous studies have provided strong evidence of the psychometric properties of the PRWE; however a systematic review can provide better estimate regarding the usefulness of the PRWE.

Methods: Medline, CINAHL, and Embase databases were searched for retrieving the relevant studies. In addition, hand searching of the retrieved studies also identified relevant studies. Sixteen studies were included in the review. Two raters independently followed standardized guidelines for data extraction and appraisal of the included studies. Descriptive summary of the psychometric properties was prepared.

Results: Quality check determined that 8 studies had quality level of greater than 70%. Construct validity of the PRWE was commonly assessed with other similar outcomes such as the Disabilities of the Arm, Shoulder, and Hand questionnaire with Spearman's correlation coefficient in range of 0.62−0.82 ($p < 0.001$). Test-retest reliability was determined on using Intraclass Correlation Coefficient which ranged between 0.78−0.94. Responsiveness was shown with Standardized Response Mean ranging from 1.51−2.27.

Conclusion: The PRWE has demonstrated adequate psychometric properties in patients with different wrist/hand conditions. It has been translated in Chinese (Hong Kong), German, Swedish, Dutch, Japanese, and Hindi languages and the versions of PRWE in these languages have also demonstrated satisfactory psychometric properties. Though investigated in some previous studies, the estimates of the clinically important difference can be derived from future studies for precise clinical application.

TRENDS IN DEXTERITY AND NORMATIVE VALUES FOR THE FUNCTIONAL DEXTERITY TEST (FDT)

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Purpose: The purpose of this study is to provide normative values for children and adults for the Functional Dexterity Test (FDT) and to present trends in dexterity with respect to age, gender and hand dominance.

Background: Dexterity is a vital component of a hand evaluation. Manual dexterity can be difficult to objectively assess because it is comprised of many components, including eye-hand coordination, sensation, and motor control. The FDT is a timed test consisting of turning over 16 cylindrical pegs on a 20 cm by 20 cm pegboard. The FDT has been shown to have good construct validity, inter- and intra-rater reliability, and can be performed in less than 5 minutes. It was developed for all types of hand injuries and can be used to assess dexterity in children and adults.

Methods: Participants were screened for prior upper extremity conditions. Age, gender, and hand dominance were recorded. Participants were instructed to turn over all the pegs in a set order by manipulating the peg in their hand (3-jaw chuck prehension). Both hands were tested. The FDT was administered as previously described, with one practice trial completed before the timed trial. However, no penalties were assessed. Elapsed time in seconds was measured with a stopwatch. Data were analyzed as 16/time (sec), or speed in pegs per second. Regression analysis was performed modeling speed with respect to age, gender, and hand dominance.

Results: A total of 323 healthy subjects participated in this study: 175 children (age range, 4 to 16 years) and 148 adults (age range 18 to 71 years). There were 88 females and 87 males among the children and 101 females and 47 males among the adults. 89.1% of the children and 95% of the adults were right-handed. Children's speed (i.e. dexterity) increases at about 0.04 pps (pegs per second) per year of age. Gender was not statistically significant in regression modeling. It can be modeled by the following regression equation: Speed (pps) = 0.04 × Age (yrs) + 0.09 (Dominant hand). This regression has an R^2 = 66.0%. Dexterity declined for adults linearly with age. It can be modeled by the following regression: Speed (pps) = 0.89 − 0.0046 × Age (yrs) + 0.06 (Dominant hand) + 0.041 (Male gender). This regression has an R^2 = 18%. The dominant hand is 0.08pps faster than non-dominant hand for children ($p < 0.0001$) and 0.06pps faster in adults ($p < 0.001$). The age-related changes in dexterity showed the same rate for dominant and non-dominant hands. Gender affects dexterity only after 16 years of age, with men having faster speeds ($p = 0.02$). The consistency of the difference between dominant and non-dominant hands in adults allows for the calculation of an individual's expected speed by testing the opposite hand and adding or subtracting 0.06pps depending on hand dominance; which is more reliable than predictions from the regression analysis.

Conclusion: Our study shows dexterity improves rapidly until age 16 and then declines steadily. The dominant hand is faster for all ages. Gender only affects dexterity in adults with men having faster speeds. For children, speed should be predicted from the regression formula of other children; for adults, speed should be predicted from an individual's unaffected hand. The FDT and the normative values presented in this study can serve as a valuable clinical resource to evaluate the effectiveness of surgery and the progression of therapy.

THE UPPER LIMB FUNCTIONAL INDEX AND QUICKDASH ARE RESPONSIVE TOOLS FOR MEASURING