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# Normative Data for Grip Strength of Elderly Men and Women

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*Objectives. Grip strength is an important prerequisite for good performance of the upper limb, hence it is important to evaluate it correctly. However, one of the main difficulties in evaluating the grip strength of elderly patients is the absence of valid norms. Therefore, the objective of this study was to develop normative data for maximum grip strength of persons aged 60 years and older.*

*Method. The grip strength of 360 subjects aged 60 years and older, randomly recruited by age and gender strata, was evaluated with the Jamar dynamometer and the Martin vigorimeter according to the protocol of the American Society of Hand Therapists.*

*Results. Grip strength diminishes curvilinearly with age, and men are consistently stronger than women. The data are presented by the means, standard deviations, and range, and as predictive equations obtained by regression analysis. In addition to age and gender, hand circumference and body height proved to be the best indicators of grip strength for this population of elderly subjects.*

*Conclusion. The random recruitment of subjects, the high participation rate in the study, and the comparability of the subjects who agreed to participate and those who refused give this study the high external validity that is essential to any norm study. The predictive equations will help occupational therapists to better estimate the expected grip strength of elderly patients than they could if using only age and gender.*

Upper limbs play an important role in everyone's daily life. A number of sensorimotor parameters, including grip strength, are necessary for their optimal performance. Grip strength is frequently evaluated in clinical settings as an indicator of disease activity (Rhind, Bird, & Wright, 1980). It has also proved to be a prognostic indicator of mortality risk in a population of elderly hospitalized women (Phillips, 1986). In addition to being an economical measure that is easy to administer, grip strength is one of the best indicators of the overall strength of the limb (Rice, Cunningham, Paterson, & Rechnitzer, 1989). Grip strength is evaluated as a component of hand function (American Society of Hand Therapists, [ASHT] 1992; Dent, Smith & Caspers, 1985; Jones, 1989).

The Jamar™ dynamometer<sup>1</sup> and the Martin vigorimeter<sup>2</sup> are well known for measuring grip strength. The Jamar™ dynamometer consists of a sealed hydraulic system with a sensitive gauge calibrated in pounds and kilograms. It is considered to be the most precise instrument for measuring grip strength (ASHT, 1992; Fess, 1987;

<sup>1</sup>Manufactured by Therapeutic Equipment Corporation, 60 Page Road, Clifton, NJ 07012.

<sup>2</sup>Manufactured by Gebruder Martin, Ludwigstaler Strabe 132, Postfach 60, D-7200 Tuttlingen, Federal Republic of Germany.