

HANDGRIP STRENGTH

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Muscle strength development, assessment and role in disease

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ABSTRACT

The basic function of the human hand is the manipulation and grasping of various objects in all daily activities, including work activities. This is greatly influenced by strength and manual dexterity. However age, gender and other contexts such as work or leisure activities could influence strength. Handgrip strength, a measure of maximum voluntary force of the hand, has proved to be reliable and valid as an objective parameter to evaluate the functional integrity of the hand as part of the musculoskeletal system. It correlates highly with strength in other muscular groups and is therefore considered as a good indicator of overall muscular strength and functional stress and could be used as a predictor of physical disability. Handgrip strength assessment is simple and reliable and used commonly by several investigators and health professionals, in different contexts (medical, nutritional, rehabilitation, professional settings, engineering, etc.) and with different purposes (research, diagnostic, assessment, etc.).

In clinical and rehabilitation settings is of vital importance in the determination of effectiveness of several interventions and for monitoring evolution of diseases.

Various ways (methods, techniques and equipments) of collecting information on grip strength have been reported.

This chapter will review basic concepts on handgrip function, methodologies of assessment, contexts of application and correlates, such as physical activity, health or nutritional status. Several populations and reference values as also the relationships between handgrip and clinical status, aging, risk of disability and diseases, will be discussed.

KEYWORDS

Muscle strength, prehension, assessment, disease