

Analyzing the Hand Grip Strength of Carpenters



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Abstract The hand grip strength is an important performing characteristic that can increase the efficiency of workers. The hand tools should be designed in such a manner that the workers can easily perform operations with sufficient grip on it. This study was conducted to measure and compare the grip strength of the carpenters of age between 19 and 60 years. The hand grip strength of 112 carpenters was determined in different postures. The carpenters were selected from the population of Jaipur district of Rajasthan (India) and all were male and native of Rajasthan. Grip strength of dominant hand of each participant was recorded with digital dynamometer. An indirect moderate correlation was observed between age and grip strength. The hand grip strength of first group (19–32 years) was observed more compared to the other two groups (33–46 and 47–60 years). The findings of such research studies may be useful for product designers while designing products targeting a particular age group.

Keywords Carpenter · Correlation · Grip strength · Hand tools

1 Introduction

The hand is regularly used in various daily operational and industrial activities. Many musculoskeletal disorders (MSDs) are caused because of this. Since grip strength is widely used for processing operations, it is essential to evaluate the grip strength to provide work capacity related information [1]. The carpenters usually manufacture, repair and install the wooden furniture, structures and fixtures. They perform various manual operations like planning, chiselling, cutting etc. using different carpentry tools like planes, chisels, saws etc. These activities are repetitive in nature and normally performed in awkward postures. Some frequently used carpentry hand

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