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Short Communication

Correlation of Thumb Length with Hand Grip Strength, Pinch Grip Strength and Hand Dexterity in Physiotherapists: An Observational Study

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ABSTRACT

Work-related thumb problems in physiotherapy had a prevalence of 44%, which is very high. This underestimated impairment should not be ignored and good treatment is necessary to help these physiotherapists. Thumb joints are more vulnerable to biomechanical and work-related injuries in Physiotherapists because of manual therapy techniques like mobilization; manipulation and massage require greater hand forces which stress the upper limb and compress the thumb joint. The present study to determine a correlation between thumb length, hand grip strength, pinch strength and hand dexterity in Physiotherapist.

To evaluate thumb length in terms of thumb length template. To evaluate hand grip strength in terms of Jammer dynamometer, pinch grip strength in terms of Jammer pinch meter and hand dexterity using Nine-hole peg test. To find correlation of thumb length with hand grip strength, pinch strength and hand dexterity.

Permission was taken from concerned ethical committee and consent was taken from the subjects. An observational study was conducted on 30 individuals, selected on the basis of inclusion criteria & exclusion criteria. Thumb length was assessed using thumb length template, hand grip strength was assessed using jammer dynamometer, pinch grip strength was assessed using pinch grip strength, and hand dexterity was assessed using peg board. There was significant correlation of thumb length (5.911 ± 1.0607) with hand grip strength (57.9429 ± 26.18031) (p value-0.054), inch grip strength but we did not find any correlations of thumb length with hand dexterity (16.9286 ± 1.45088) (p value-0.10). There is significant correlation in thumb length and hand grip strength, small and medium thumb length shows significant grip strength as compared to large and extra-large. There was no significant correlation found of thumb length in hand dexterity as compared to hand grip strength and pinch grip strength respectively.

Keywords: Thumb length; Hand grip strength; Dynamometer.

INTRODUCTION

Grip strength is a generic phrase that refers to an animal's physical strength as well as the muscular power and force that can be created with the hands in athletes. Grip strength is vital for rock climbers and is a component in strongman contests and weight lifting in athletics. Grip strength training is a common aspect in martial arts and can be beneficial in a variety of occupations that need people to use their hands.

Types of the grip

Objects can be gripped in a variety of ways using the human hand. These various positions necessitate various forms of grip strength, which is often measured based on how the hand is utilized. The crush grip is what most people think of when they hear the word "grip." It's a handshake-style grasp in which the object is tightly gripped against the palm and all fingers. A strong crush grasp is excellent for breaking objects with pressure or in bone-crushing handshakes [1].

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The fingers are on one side of the object and the thumb is on the other in a pinch grasp. An object lifted in a pinch hold usually does not come into contact with the palm. This is thought to be a weaker grip position. When holding anything like a weight plate or lifting a sheet of plywood by the top edge, the pinch grip is used.

A support grip entails holding something for an extended period of time, such as a bucket handle. The farmer's walk competitive event, in which a bucket is filled with sand or water and carried over a long distance, exemplifies this type of power. To have a solid carrying grip, you'll need a lot of muscular endurance [2].

Normative data

Grip strength has been studied extensively in medical and ergonomic studies and it has been discovered that 95 percent of men have stronger grips than 90 percent of women. There are also averages for different forms of grip in various situations [3].

In medicine

Grip strength is a type of hand strength that is frequently utilized in medicine. This testing serves a variety of purposes, including diagnosing disorders, evaluating and comparing therapies, documenting muscle strength progression and providing feedback during the rehabilitation process as a measure of hand function [4].

In sports

In sports, hand grip is a crucial, but often neglected, component of strength. Grip strength, on the other hand, is frequently a secondary or auxiliary purpose of the sport [5]. Movement-based sports such as climbing, calisthenics, gymnastics, pole dancing, horse racing, powerlifting or professional arm-wrestling; ball-based sports such as baseball, gridiron football, rugby, canoe polo, badminton or tennis; and combat sports such as wrestling, judo, brazilian jiu-jitsu, boxing or fencing; and combat sports such as wrestling, judo, brazilian jiu-jit. Hand grip strength is a critical component of a player's strength in sports, determining how readily a ball can be grasped and how efficiently equipment can be used.

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