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Commentary

Researching the Effectiveness of Therapeutic Interventions for Carpometacarpal Osteoarthritis

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DESCRIPTION

The carpometacarpal (CMC) joint of the thumb plays a vital role in optimal hand function. The thumb CMC joint is frequently affected by osteoarthritis (OA), a degenerative condition that can result in deterioration of the joint surfaces. Individuals with CMC joint osteoarthritis (OA) have decreased grip strength that impacts hand function and their ability to perform resistive grip tasks and seemingly simple tasks such as wringing out washcloths and performing meal preparation tasks. The purpose of this short communication is to enhance the readers understanding the clinical reasoning that is required of therapists that prescribe exercises to individuals with carpometacarpal (CMC) osteoarthritis (OA) of and to illustrate the need for further research in this area. A systematic review looking at the efficacy of conservative interventions for carpometacarpal (CMC) osteoarthritis (OA) was published and found that conservative interventions such as orthotic provision, hand exercises, application of heat, joint protection education, and the provision of adaptive equipment improve grip strength and function. The efficacy of exercise was established in the systematic review but it was found that there was much disparity between the exercise interventions for the carpometacarpal (CMC) joint that were analyzed in the review. A comprehensive literature review was performed and data was gathered from bench studies that looked at the biomechanical forces that act on the carpometacarpal (CMC) joint. The findings from the bench studies characterized the causes of instability at the basal thumb joint resulting from publication of an article that proposed an exercise program based on the findings of the bench studies. More recent collaborative work with Jorge Villafañe has gathered data on grip and pinch strength, the validity of the measuring instruments used to assess pinch and grip, and thumb and finger abduction strength in a population of 70 to 90 year old females with carpometacarpal (CMC) osteoarthritis (OA) and normal controls. Another study aimed to establish the cutoff values scores for minimal clinically important difference (MCID) of grip, tripod pinch, and tip pinch for patients that have CMC OA. The concept of the MCID refers to the smallest difference in a score that is considered to be worthwhile or important. Women with CMC osteoarthritis (OA) demonstrated 10 Kg mean lower grip strength (6.2 Kg) when compared to healthy controls (16.8 Kg) ($p<0.01$).The MCID from baseline score in this patient population was 0.84 Kg for grip, 0.33 Kg for tip and 0.35 Kg for tripod pinch for the affected right hand. It was also found that maximum handgrip strength and pinch strength can be measured reliably, using the Jamar hand dynamometer and pinch meter, in patients with thumb CMC OA, which enables its use in research and in the clinic to determine the effect on interventions on improving grip. The CMC joint and the effectiveness of the interventions that therapists provide to improve and restore hand strength and function provide a fascinating research topic. Further research studies may positively affect the outcomes and interventions that therapists provide to their patients with carpometacarpal (CMC) osteoarthritis (OA).

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