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Relationship between duration of immobilization, hand injury severity and shoulder functional outcome in clients with a hand injury

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ABSTRACT

Background: Hand is the most frequently used body part in daily living activities that enables to manipulate the environment and give an identity. Injuries to the structures of the hand such as fractures, lacerations, crush injury, soft tissue injuries based on the varied levels of severity warrants the need for the part to be immobilized. These immobilization leads to secondary changes that are majorly reported in the proximal areas where majorly the impairment is in the shoulder functions. Hand injury based on the severity and consequent immobilization can compromise the shoulder function.

Aim: To study the relationship between duration of immobilization and severity of hand injury on the impact of shoulder function.

Methods: The cross sectional observational study included 82 participants with hand injury. Period of immobilization and Modified Hand Injury Severity (MHISS) score was administered and Constant Murley scale was used as outcome measure to participants with hand injury below the level of elbow. Pearson and Spearman correlation was used to determine the correlation between the variables.

Result: The period of immobilization had a weak negative correlation with Constant Murley scale $r = -0.297$ ($p = 0.007$) which indicates that more the immobilization period lesser is the shoulder function. The MHISS score is strongly negatively correlated with Constant Murley scale $r = -0.668$ ($p < 0.001$) which indicates that more the injury severity, lower is the shoulder function.

Conclusion: The result concluded that longer the period of immobilization and higher the injury severity, more is the impairment in the shoulder function of individuals with hand injury. The

study findings suggest that therapists working with patients with hand injury should be aware of the problems that develops in the shoulder taking into account the immobilization period and severity of injury and there is a need to plan interventions to prevent or restore the shoulder functions.

Key words: hand injury, injury severity, immobilization, secondary changes, shoulder function