

Effectiveness of early stretching exercises for range of motion of the shoulder joint, state of axillary scar and quality of recovery in burnt patients admitted to the Burns unit of the National Hospital of Sri Lanka

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Background: Burn injuries can result in long term impairment, limitation and activity participation restrictions in a patient's life. The majority of burns occur in low- and middle-income countries. In axillary or shoulder burns scar contracture is common and leads to loss of shoulder movements and function.

Purpose: This study aim was to compare outcomes of an early stretching exercise programme on the range of motion of the shoulder joint, state of axillary scar and quality of recovery for patients with upper limb burn with a control group. This study has not been discussed in the previous literature.

Methods: A randomized controlled study was conducted in National Hospital of Sri Lanka. Patients from 15 to 55 years of age with a total burn surface area (TBSA) of 10% to 45% involving the shoulder joint and axilla were eligible. Participants were randomized into intervention and a usual care (control) groups. There were 110 patients in each group. The study protocol lasted 14 days for each participant in the intervention group, whilst the controls had usual care. Range of Motion (ROM) was measured with a Universal Goniometer. Functional recovery (FR) and state of the axillary scar was assessed with the Quick DASH questionnaire and Vancouver Scar Scale (VSS). Data were obtained before and after the intervention phase and at 3, 6 and 12 months of post burn.

Results: Age, intervention group mean [SD] 29.76[9.81] vs control group mean [SD] 30.31 [9.45] and TBSA%, intervention group mean [SD] 26.15[9.45] vs control group mean [SD] 24.60[9.56] were not significantly different. There were highly significant differences ($p > 0.0001$) in ROM, FR and the state of the axillary scar in favour of the intervention group.

Conclusion: This study demonstrated that early stretching exercise regime significantly improved the ROM and functional recovery of the shoulder joint and scar condition of the axilla for adults with burns involving the upper arm.

Key words: Range of Motion (ROM), Stretching exercises, Axillary burn, Burns Scar, Functional recovery

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