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Cortical training in the management of acute upper limb burns: a pilot randomised controlled trial

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**Introduction:** A burn injury causes pain which leads to decreased use and loss of function. Pain and decreased function are themselves distressing and when excessive may impede healing of the burn. Hyperalgesia will enhance the pain experience and may contribute to avoidant behaviours. Primary hyperalgesia is driven largely by local tissue events; however central nervous system changes appear to contribute strongly to secondary hyperalgesia. Within days, neural system changes such as reorganization of the cortical representation of the injured area can occur. Such cortical re-organization has been linked to hypersensitivity and may play a role in the development of ongoing pain states. This study investigates a cortical training programme (CTr), which addresses both motor and sensory representation of the injured area. The aim is to minimise the cortical consequences of the acute burn and possibly influence the development chronic pain. Evidence for the use of a cortical training approach are found in other clinical populations such as chronic regional pain syndrome and phantom limb pain.

**Objective:** This prospective randomized pilot trial will investigate the efficacy and feasibility of CTr in acute upper limb burns (AULB).

**Method:** Patients with minor AULB are randomized to control (usual care) or intervention (usual care + CTr) groups. Patients receive treatment during regular outpatient clinic attendance as well as a comprehensive home programme.

**Outcome measures:** QuickDASH, Pain Detect Measure, Modified Tampa Scale of Kinesophobia, Pain self-efficacy questionnaire, Post-traumatic checklist, hand laterality.

**Results:** Results to date will be presented. Initial analyses indicate the feasibility and safety of the technique in UL burn patients. However, a number of questions are raised with respect to the timing of treatment and the long term implications of such input.