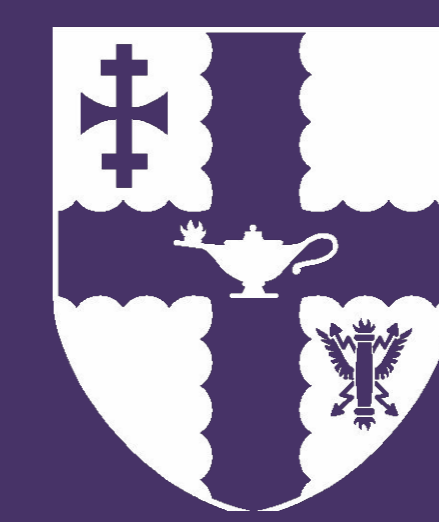


# High Intensity stretching using an orthopaedic apparatus (STAK tool) to reduce knee oedema and improve range of motion among arthrofibrosis patients



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## INTRODUCTION

Knee arthrofibrosis is major complication following trauma or injury characterised by excessive aggregation of scar tissue between the quadriceps mechanism and the distal femur. During arthrofibrosis, the knee becomes inflamed, stiff, leading to restricted range of motion (ROM). Physiotherapy is the primary management modality prior to invasive treatment procedures. The primary objectives of standard physiotherapy are to reduce swelling and restore ROM. Stretching exercises are commonly used by therapists, aiming to permanently remodel the joint connective tissue and break the adhesions of scar tissue within the joint. Conflicting evidence exists whether high intensity stretching is a beneficial strategy to treat knee arthrofibrosis.

## AIM

The aim of the study was to examine the effect of performing home-based, high-intensity stretching at the joint end-range of motion using the new Self-Treatment Assisted Knee tool (STAK) in reducing knee oedema and improving knee ROM.

## METHODS

Twenty-six patients with less than 80° flexion were recruited. Eleven patients underwent home-based high intensity stretching using the “STAK” tool in addition to their standard physiotherapy and fifteen patients received standard physiotherapy alone (control group). Eleven patients in the control group were invited to use the STAK after expressing dissatisfaction with standard physiotherapy alone. Knee oedema was recorded using an ordinary tape measure and ROM measured with a universal goniometer. Measurements were recorded on the first visit, following the 8-week intervention periods and at 11 months follow up.

## RESULTS

There was a clinically important reduction in knee oedema of 1.4 cm and a statistically significant improvement in total knee ROM of 33.5° over the 8-week STAK intervention compared to the control group who had a reduction in oedema of 0.1 cm and an increase in ROM of 4.4°.

In the STAK intervention group the increase in ROM and reduction in swelling was maintained at long term follow up.

## CONCLUSION

The “STAK” tool is an effective modality increasing ROM and reducing oedema, which can be used to offer home-based therapy to treat arthrofibrosis.



Figure 1: The STAK tool

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