

Matthew McDonald-Liggins, Reena Patel and Sundeep Nagi

Title: An Investigation into the Acute Effects of Self-Myofascial Release with a Foam Roller versus no intervention on Hamstring Flexibility.

Background: In the last decade foam rollers have been used as a form of self-myofascial release with increasing popularity. However, as a relatively new concept there is little quality evidence evaluating its immediate effects.

Methodology: 24 healthy university students volunteered to take part in this two-arm parallel-group trial. The participants were randomised into either an intervention or control group.

The participants in the intervention group used a foam roller to perform self-myofascial release on their hamstring. The foam roller was applied for two bouts of one minute on the dominant leg of each participant. The participants in the control group did not use the foam roller but instead remained seated for 3 minutes. Hamstring range of motion was then measured immediately pre and post activity using the passive knee extension test for all 24 participants.

Results: A paired t test was used to analyse the data and a level of significance was set at ($P < 0.05$). There was a statistically significant increase in ROM in both the intervention and control group ($P < 0.05$). An independent t test was performed in order to analyse the change between the two groups, results showed that the usage of the foam roller provided a statistically significant increase in range of motion when compared to the control group ($P < 0.05$). A second independent t test was performed analysing the variance between the two groups, results showed there was no significant difference ($P > 0.05$).

Conclusion: The application of self-myofascial release with a foam roller provides a significant increase in hamstring range of motion when compared to the control. Further research is needed in order to establish the most effective method of application.

Natalie Gill and Sundeep Nagi

Title: An Exploration of the Experiences of Returning to Sport Post Anterior Cruciate Ligament Reconstruction.

Background:

Existing literature generally agrees that less than 50% of individuals return to their pre-injury sport post anterior cruciate ligament (ACL) reconstruction. Whilst the physical ability of the repaired knee has often been examined, there must be additional factors affecting resumption of sport. This is pertinent to clinicians because it may highlight further elements that need to be addressed in rehabilitation to maximise return-to-sport outcomes post ACL reconstruction, but there appears to be an absence of an in-depth examination on this subject using focus group research.

Aims:

The purpose of this qualitative study is to explore the experiences of returning to sport after an ACL reconstruction. In addition, it aims to gain an in-depth knowledge of individuals' thoughts, feelings and the barriers and opportunities that might affect participation.

Design and Methodology:

This phenomenological study was conducted using a focus group with a purposive sample of students from the University of Leicester who had undergone an ACL reconstruction. Once the data had been collected, the discussion was transcribed verbatim, and thematic analysis was adopted to identify themes.

Results:

Two overarching themes emerged from the data; fear and rehabilitation. Fear was divided into the sub-themes as follows; fear of re-injury, fear of the long-term consequences and fear of the knee's reduced physical capabilities. Rehabilitation was broken down into five sub-themes; physiotherapy, NHS vs private rehabilitation, education, participation in alternative sports and time-consuming rehabilitation.

Conclusion:

Multiple barriers inhibiting return to sport have been highlighted but further opportunities in aiding recommencement can be developed from the ideas proposed in this study. Rehabilitation should involve interventions to address the psychological and physical elements that are frequently associated with ACL reconstruction. Ensuring goals are patient-centred, encouraging participation in alternative sports and educating individuals on the realistic time-frames for recuperation can help to maximise the potential for resuming pre-injury sport.

Hollie Coulson and Simon Barry

Title: An investigation comparing the concentric and eccentric muscle strength of the Quadriceps and Hamstrings following an ACL reconstruction

Subject of Research

Anterior Cruciate Ligament reconstructions are commonly used to treat ACL ruptures although the full extent of the effects on muscle strength following surgery is not clear. There is sparse research investigating muscle strength deficits in participants who have undergone an ACLR, especially focussing on eccentric muscle strength. This study aims to bring new knowledge to clinicians concerning muscle strength deficits and may in turn affect clinical practice and relevant protocols to prevent graft ruptures and further injury.

Methodology: Seven asymptomatic subjects that had undergone a uni-lateral ACLR participated in this quasi-experiment. The concentric and eccentric muscle strength of the affected and un-affected knees were recorded using a Cybex Dynamometer. The Hamstring: Quadricep ratio was calculated concentrically and eccentrically and compared between knees.

Results: A significant difference was found between concentric extension ($p=0.017$), eccentric flexion ($p=0.009$) and eccentric extension ($p=0.006$) when comparing the participants affected and un-affected leg. No difference was found between concentric or eccentric H:Q values or concentric flexion.

Conclusion: The data collection suggests eccentric muscle weakness of the quadriceps and hamstrings and also concentric weakness in the Quadriceps for the affected leg. Although the findings lack power due to the small sample size, this feasibility study could be repeated using this method to produce generalizable data. To fill the gap in knowledge, eccentric muscle and H:Q values strength should be the focus of future research with ACLR patients. Factors affecting muscle strength should also be considered in future research and extensive demographic information should be collected for each participant.