6.5 Biomechanical outcomes following autologous chondrocyte implantation: comparison of traditional and accelerated approaches to post-operative rehabilitation.
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Purpose: Patients spend up to 12 weeks partial weight bearing (PWB) following autologous chondrocyte implantation (ACI), a relatively long period of altered gait patterns. It is unknown how these PWB programmes affect the recovery of gait function and subsequent long-term graft outcome. We sought to investigate the return of gait normally following ACI, with respect to 'traditional' and 'accelerated' approaches to load bearing rehabilitation.

Methods and Materials: Gait analysis was performed at three months post-surgery in this randomized controlled study design, in 52 patients walking at comfortable, self-selected speeds, as well as a matched control group.

Results: Normalized peak external knee adduction and flexion moments were significantly different between accelerated and traditional groups (p<0.05). Comparison of each rehabilitation group with their respective control group revealed a significant difference in peak knee adduction and flexion moments for the traditional group (p<0.05). However, there was no difference for accelerated patients (p>0.05), which may demonstrate the return to a more 'normal' knee loading pattern. Peak external vertical ground reaction force parameters and knee kinematics between both rehabilitation groups and their respective control groups were significantly different at three months post-surgery (p<0.05).

Conclusions: An 'accelerated' load bearing approach that reduces the length of time spent ambulating on crutches is not detrimental to post-operative gait patterns, and may speed up the recovery of normal gait function. Patient follow-up is required to see if long-term graft outcome is affected by the recovery time course of normal gait function, and/or abnormal loading mechanics in gait.

6.6 Implementation of rehabilitation exercises for patients treated with characterized chondrocyte implantation and microfracture.
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Purpose: To evaluate the implementation and compliance with a specific standardized rehabilitation protocol post surgical cartilage repair.

Methods and Materials: A total of 95 physiotherapists received instructions for implementing and reporting on the standardized rehabilitation protocol. The protocol describes the rehabilitation by goals and specific restrictions. How long, how frequent and intense exercises were to be performed was not strictly imposed. The reporting rate and the physiotherapy were examined over a post-operative period of 12 months. Variables to report on included clinical examination, exercises, mobilization modalities, electrotherapy and thermotherapy.

Results: During the first 3 months all physiotherapists reported, from 41% to 85%. Following 3 months 50% of physiotherapists reported, from which 41% once a month. For the last 6 months only 27% reported from which 15% once a month. Due to the low report rate after 3 months the physiotherapy was not analyzed. The first 3 months the physiotherapists reported 4 months. This was between 0 and 39 sessions per week. The preference and timing of the modalities were highly consistent with the protocol in both groups. Moreover the modalities used for both treatment groups were not significantly different over 12 weeks. However within specific weeks minor differences for time spent on gait rehabilitation exercises and mobilization exercises were observed.

Conclusions: Overall, the rehabilitation protocol was implemented in a similar way in both treatment arms. The physiotherapists followed and reported the protocol with an excellent compliance the first 3 months. Follow up to 12 months showed a progressive decline in reporting.