

injury. Twelve patients were subjected to reamed nailing and the rest to unreamed nailing. The mean control (patients undergoing total hip replacement) femoral IL-6 concentration was 9.6 pg/ml. In femoral canal samples from trauma patients, the initial IL-6 concentration at canal entry was significantly higher at 9348 pg/ml, and increased significantly following reaming to 17,925 pg/ml. At the same time points the IL-6 concentration in peripheral blood samples were significantly lower at 123.65 and 136.72 pg/ml respectively ($p = 0.001$). At 24 h, the peripheral IL-6 concentrations raised significantly from 162.7 to 799.8 pg/ml, illustrating the second hit insult. These values were also significantly higher than those measured in the unreamed group at all time points ($p < 0.001$). Two patients in the reamed nailing group developed ARDS following the procedure. There was no mortality in any group.

Conclusion: This data illustrates that reaming of the femoral canal results in significantly higher local and peripheral IL-6 concentrations. Femoral canal instrumentation represents a significant source of inflammatory mediators, propagating a second hit effect as expressed systemically. In multiple injury patients, these findings should be considered when determining the treatment plan to avoid inflicting further harm.

doi: [10.1016/j.injury.2006.06.090](https://doi.org/10.1016/j.injury.2006.06.090)

Osteotomy of the femoral neck for severe slipped capital femoral epiphysis

C.M. Coapes, I. Alcelik, P. Savvides, A. Adedapo, R. Montgomery

James Cook University Hospital, Middlesbrough, UK

Introduction: The management of severe slipped capital femoral epiphysis remains controversial. Slipped capital femoral epiphysis tends to occur at an age when the child has limited potential for remodelling. It is recognised that outcome of the disorder is related to the severity of the slip. Severe slips have a high risk of undergoing degenerative change within 15 years. Osteotomy of the femoral neck aims to reduce the deformity and improve function and long-term survival of the hip.

Aim: To assess the short-term outcome of patients who have had an osteotomy of the femoral neck at the level of the physis for severe slipped capital femoral epiphysis.

Materials and methods: From 2000 to 2005, 10 patients underwent a femoral neck osteotomy at

the level of the physis for severe slipped capital femoral epiphysis. All presented with pain and inability to weight bear. Diagnosis was confirmed with anteroposterior and lateral radiographs of the hip. The procedures were all carried out via a Smith–Peterson approach and a subcapital osteotomy performed to allow reduction of the epiphysis. Fixation was with a single cannulated screw. Post-operatively the patients were non-weight bearing for 6 weeks then partial weight bearing for a further 6 weeks.

Patients were assessed clinically and radiographically at follow-up.

Results: To date patients have been followed up for a mean of 22 months (range 2–48 months). Two patients (two hips) suffered avascular necrosis (10%); the clinical outcome was unsatisfactory. Of the remaining eight patients (eight hips) there were no cases of chondrolysis. These patients considered their outcome satisfactory.

Conclusion: The rate of avascular necrosis of 20% is within the range quoted in other series of intra-capsular osteotomies of various types (4.5–35%). In our series subcapital osteotomy gave satisfactory clinical and radiographic outcome in 80% at a mean of 22 months follow-up. We suggest this one satisfactory option in the management of severe slipped capital femoral epiphysis.

doi: [10.1016/j.injury.2006.06.091](https://doi.org/10.1016/j.injury.2006.06.091)

Early active treatment of femoral shaft fractures in children—A proposed protocol

Simon W. Sturdee, Ziad Dahabreh, Peter A. Templeton, Eileen Cullen, Peter V. Giannoudis

Academic Department Orthopaedic & Trauma Surgery, University of Leeds, Leeds, UK

The aim of this study was to compare the modern treatments for traumatic femoral shaft fractures in children to traditional treatments. We studied 66 children who had sustained a fracture, over a 6-year period. A protocol using early hip spicas (EHS) for under 5 year olds, flexible intramedullary nails for over 5 year olds, and external fixation (ExFix) for the polytrauma cases was started in 1999. Over a 3-year period, 25 children sustained a fracture (early active group) and were prospectively followed up for a minimum of 24 months. The outcome measures being, length of hospital stay, degree of mal-union, range of hip and knee movement, leg length discrepancy, pain and functional restrictions. This group was compared with all fractures in the 3 years prior to the new protocol (traditional group, $n = 41$) which were treated with in patient traction.