

## 2) TITLE: Long-Term Follow-Up of Complications of Iliac Crest Bone Graft Harvesting

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**INTRODUCTION:** Autogenous Iliac Crest Bone Graft (ICBG) has been the “gold standard” for spinal fusion. However, bone graft harvest may lead to complications, such as chronic pain, numbness and poor cosmesis. The long-term impact of these complications on patient function and well-being has not been established but are critical in determining the value of expensive bone graft substitutes such as recombinant bone morphogenetic protein. The purpose of this study is to investigate the prevalence of chronic graft site pain and the impact of this pain on long-term quality of life and disability in a cohort of patients undergoing autologous ICBG harvest for various spinal procedures.

**OBJECTIVE:** We hypothesize that: 1) graft site pain will be reported by a significant percentage of the sample at greater than 3 years postoperative follow-up, and 2) graft site pain will significantly impair functional health at greater than 3 years postoperative follow-up.

**METHODS:** Prospective study of 158 spinal fusion patients with a mean age of 51.5 years (SD=12.3) and balanced gender (49% male). Lumbar fusion patients predominated (cervical n=22; lumbar=142). The SF-36v2, the Oswestry Disability Index, and a 14-item follow-up questionnaire addressing persistent pain, functional limitation, and cosmesis were administered with a 73% response rate. Multiple regression analyses examined the independent effect of ICBG complications on physical and mental health and disability.

**RESULTS:** At 3.5 years mean follow-up, patients reported being bothered by harvest site scar appearance (6%), numbness (23%), and 14% reported that the numbness was bothersome. Harvest site pain resulted in difficulty with and household chores (19%), recreational activity (19%), walking (16%), sexual activity (16%), their job (9%), and irritation from clothing (9%). Univariate regression analysis revealed that ICBG complications significantly impaired physical and mental health as well as disability. Multivariate regression analyses revealed that persistent ICBG complications were associated with significantly worse disability 3.5 years post surgery, after adjusting for workers' compensation status, surgical site pain, and extremity pain ( $\beta = 1.7, p < 0.02, R^2 = 0.59$ ). There was a trend association with physical health, after adjusting for age, workers' compensation status, surgical site pain, and extremity pain ( $\beta = -1.55, p < 0.08, R^2 = 0.39$ ). There was no association with mental health in the multivariate model ( $\beta = -1.61, p = 0.15, R^2 = 0.30$ ).

**CONCLUSION:** Chronic ICBG harvest site pain is reported by a significant percentage of patients undergoing this procedure over three years following surgery. In affected patients, persistent pain is associated with a wide range of functional limitation and negatively impacts patient-reported disability.

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