study was to evaluate the effect of upper extremity immobilization using a sling on driving performance using a driving simulator.

Methods: A computerized driving simulator was used to develop a simulated circuit to test a variety of driving conditions. The circuit simulated normal rural driving with various hazardous conditions that necessitate evasive maneuvers and turns at varying angles. Twenty healthy volunteers were tested on two trials on a single simulated circuit. Trial 1 consisted of driving under natural conditions and served as the control group. Trial 2 consisted of driving with the dominant driving arm immobilized using a shoulder sling. Participants were randomized with respect to the temporal order of each trial and each course was customized to the driver's reaction time to limit variability between course output measures.

Results: The mean $\pm$ standard deviation for number of collisions, maximum angular change (rad/s) for each turn and proximity to any oncoming vehicles (m) and stationary objects was extrapolated from driving simulator output data. The total number of collisions for non-sling driving was 34 (mean 1.70 $\pm$ 1.21) and 73 for sling driving (3.65 $\pm$ 1.63) ($p<0.01$). Seventy percent of participants with upper-extremity immobilization were involved in ≥ 3 collisions, 70% of non-sling participants were involved in ≤ 2 collisions. There was no statistically significant difference between groups with respect to angular change for all simulated turning angles and with respect to proximity to oncoming vehicles and stationary objects.

Conclusion: Sling Immobilization of the dominant driving arm results in a decrease in driving performance and safety with respect to the number of collisions in a simulated driving circuit ($p<0.01$). The decrease in driving performance is likely to be related to the effect the immobilized arm has on performing evasive maneuvers during hazardous driving conditions. This data has important implications for patients and decisions related to return to driving after shoulder injury or shoulder reconstruction.

Outcomes after Arthroscopic Scapulothoracic Bursectomy and Partial Scapulectomy (SS-22) *Trevor R. Gaskill, M.D., Presenting Author*
Olivier A. Van der meijden, M.D.
Marilee P Horan, M.P.H.
Peter J. Millett M.D. M.Sc.

Introduction: The scapulothoracic articulation is an underappreciated yet critical component of normal glenohumeral function. Although uncommon, abnormalities within this articulation can result in pain or mechanical symptoms. The purpose of this study was to assess the efficacy of arthroscopic scapulothoracic bursectomy in treating patients with snapping scapula syndrome.

Methods: In this IRB approved study, 23 shoulders in 20 consecutive patients were identified over a 4 year period that were a minimum of 2-years from arthroscopic treatment of snapping scapula syndrome. Each patient described mechanical symptoms, failed non-surgical modalities, and reported symptomatic relief from a local anesthetic injection prior to surgical intervention. Preoperative and postoperative pain and functioning levels were assessed using the ASES, DASH, and SANE shoulder scores. Patient satisfaction with surgical outcomes was also recorded using a 10 point VAS scale. Univariate and paired t-tests were used for analysis of data. Significance was established when $p \leq 0.05$.

Results: The mean age at time of surgery in this series was 33 years (19-58 years). The mean duration of symptoms prior to presentation was 2.9 years (range 2 months - 12 years). A scapulothoracic bursectomy alone was performed in 2 shoulders and the remaining 21 shoulders underwent both bursectomy and partial superomedial scapuloplasty. At a mean follow-up of 2.5 years (2-4 years) a significant improvement in the ASES score was noted, improving from 53 points (range 17-83) preoperatively to 76 points (range 32-100) postoperatively ($p=0.001$). The mean SANE-score at follow-up was 75 and the mean DASH score was 34 (range 0-89). Overall, patient satisfaction with surgical outcome was 7 out of 10. Two shoulders (7%) underwent revision for persistent scapulothoracic pain and 2 others subsequently required additional shoulder surgery including a Bankart repair and subacromial decompression with biceps tenodesis. There were no complications from the surgical procedures in this series.

Conclusion: Arthroscopic scapulothoracic bursectomy and partial scapulectomy is a reasonable treatment option for snapping scapula syndrome. The results from this series indicate that significant pain and functional improvement can be expected. Further analysis is necessary to determine how outcomes can be maximized and if prognostic risk factors can be identified.

Arthroscopy of the Sternoclavicular Joint (SS-23) *Graham Tytherleigh-Strong, F.R.C.S.(Orth), D.Sport. Med., Presenting Author*
Dylan Griffiths, F.R.C.S.(Tr&Orth)
Alan Getgood, F.R.C.S.(Tr&Orth), M.D.

Introduction: Aim: To describe the technique of sternoclavicular arthroscopy in the diagnosis and treatment of patients with symptomatic sternoclavicular joint disorders.