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**Post-traumatic Joint Contractures:  
Correlation between the Human Condition and an Animal Model, and  
Identification of a Potential Preventative Intervention**

Joint contractures are characterized by a loss joint motion, commonly a complication following injury. The post-traumatic joint contractures are common problems. Surgical release of post-traumatic contractures is required in 10 – 15% of elbow injuries. An extrapolation of an analysis of the Calgary Health Region database indicates at least 12,000 elbow fractures and/or dislocations annually in Canada. This clearly suggests that post-traumatic contractures are a common problem nation-wide. Many affected individuals are in the 20 – 60 year age group, significantly increasing the impact on productivity and quality of life.

Our research group has performed research over the last 12 years on contractures. The joint capsule is a key contributor to the motion loss. Studies in our laboratory have shown abnormalities in the joint capsule with increased numbers of contractile cells coupled with a fibrosis of the material between the cells, causing a thickened joint capsule. Based on these studies, a medication already approved for human use in asthma was able to decrease contracture severity in animal models of post-traumatic joint contractures. Our future research will refine these findings improving our understanding of the underlying processes in the development of contractures following injury. Ultimately the goal is to bring new preventative measures for post-traumatic joint contractures in patients suffering joint injuries and fractures.