

## **Thermal effects of shoulder electrothermal arthroscopic capsulorrhaphy monitored by differential scanning calorimetry – a preliminary study.**

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The shoulder is the most frequently dislocated joint in the body. The instability of the joint is caused by ligamentous capsular redundancy. When non-operative management fails for these patients, quality of life is significantly impaired and surgical treatment is required to tighten the ligaments and the joint capsule. Radiofrequency energy of electrothermal arthroscopic capsulorrhaphy (ETAC) represents a relatively non-invasive method to stabilise joints with excessive laxity by thermally shrinking redundant joint capsular tissue. Due to the thermal denaturation of joint capsular tissue collagen fibres the capsule shrinks, so the stability of the joint rises. However the indication and the sufficiency of this treatment is still not clarified. Differential scanning calorimetric (DSC) examination is a validly efficient method for the demonstration of structural changes in biological systems. The purpose of this study was to establish the feasibility of DSC in this field too. We used cadaveric tissue samples to establish the thermograms of the thermal denaturated and the intact capsular joint tissue. Our preliminary findings suggests that DSC can be a viable method by monitoring the structural effects of ETAC.