Purpose: It is generally thought that the interval between the occurrence of tendon rupture and the repair should be shorter to obtain a good clinical result. Adhesion of rotator cuff tendons to surrounding tissue and muscle atrophy was considered to be a main cause of poor results. However, there was no report that examined mechanical properties of repaired tendon with degeneration. We developed an experimental model of rotator cuff repair and measured the ultimate strength and stiffness at the tendon repair site on the greater tuberosity. Immediate tendon repair (tendons were sutured immediately after laceration) and delayed tendon repair (tendons were sutured 5 weeks after laceration) were compared with respect to mechanical strength and stiffness.

Materials and methods: Sixteen infraspinatus tendons from both shoulders of eight beagle dogs (8.5-12.0 kg) were used in this study. The shoulders were harvested for histological examination of the delayed repair specimens demonstrated that the tendon degeneration due to chronic mechanical stress. Collagen fibers in the tendon become disorganized and edematous. From this point of view, we initially considered that the mechanical properties of a repaired tendon that showed degeneration would be inferior to those of a repaired tendon without degeneration. We developed an experimental model of rotator cuff repair and measured the ultimate strength and stiffness at the tendon repair site on the greater tuberosity. Immediate tendon repair (tendons were sutured immediately after laceration) and delayed tendon repair (tendons were sutured 5 weeks after laceration) were compared with respect to mechanical strength and stiffness.

Discussion: In the clinical setting, a ruptured rotator cuff tendon suffers from shoulder and elbow - Hall E