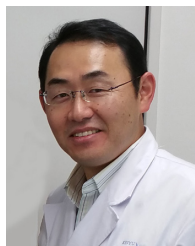


# English Lectures & Papers 2 "Elbow UCL injury"

Feb. 3rd (Fri) 9:45~10:45

Room 1 (Yamagin Kenmin Hall 2F Main Hall)

## English Lectures 2 (L2-1)



### UCL reconstruction for baseball player

Kozo Furushima, Tadanao Funakoshi, Toru Takahashi, Yoshiyasu Ito  
Keiyu Orthopaedic Hospital, Japan

In recent years, Tommy John surgery (the reconstruction of ulnar collateral ligament of the elbow) has been improved in various ways since the method first devised by Dr. Jobe (Figure eight method), resulting in more stable results and a high probability of returning to play baseball.

In Japan, Dr Ito, a co-presenter, performed Tommy John surgery first and has return back many baseball players.

The difference between the Ito method and the Figure eight method is that the tendon is passed through one bone hole in the medial epicondyle and fixed with a bone peg.

Many reports show good postoperative results, but the recovery rate is still not 100%. We are working hard every day to aim for a 100% improvement rate.

It is difficult to evaluate how much the aggregation of small techniques contributes to postoperative results, but I would like to talk about about tips during surgery that are difficult to convey in academic reports and papers.

#### 【Curriculum Vitae】

Keiyu Orthopaedic Hospital	2006	Keiyu Orthopaedic Hospital
Thoracic Outlet Syndrome Research Center: Chief		Orthopedic Surgery, Mutsu General Hospital
Sports Medical Center: Chief		Orthopedic Surgery, Hakodate City Hospital
Regenerative Medicine Treatment Research Center: Chief	2002- 2000-	Orthopedic Surgery, Ohdate General Hospital
		Division of Genetic Diagnosis, The Institute of Medical Science, The University of Tokyo.
2022- Regenerative Medicine Treatment Research Center: Chief	1999-	Institute for Molecular and Cellular Regulation, Gunma University.
2018 Thoracic Outlet Syndrome Research Center: Chief	1998-	Department of Orthopedic Surgery, Hirosaki University
2014 JOSSM-AOSSM traveling fellow	1992 -1998	School of Medicine, Hirosaki University
2010 Sports Medical Center: Chief		

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## English Lectures 2 (L2-2)



### Advances in the Surgical treatment of UCL injuries

Joshua S. Dines

Sports Medicine Institute, Hospital for Special Surgery, USA

Ulnar collateral ligament (UCL) injuries continue to be a major source of morbidity in baseball players. The throwing motion creates nearly supraphysiological levels of valgus stress on the medial elbow, placing these athletes at high risk of UCL injury. The incidence of injury continues to rise at an alarming rate, especially among adolescent baseball pitchers. Certain risk factors for UCL injury have been identified, including pitch velocity, fewer days between outings, and overall workload. Treatment of UCL injuries depends on the type of tear. Low- to medium-grade partial UCL tears (i.e., grade I or II tears) are usually amenable to a period of rest and a graduated throwing program. Recently, platelet-rich plasma has been described as another treatment modality to consider in a throwing athlete with a partial UCL tear, although robust clinical data are currently lacking. Most athletes can return to competitive throwing in 3 to 4 months after nonoperative management of a low-grade partial UCL tear. Indications for surgical management of a UCL injury are a complete (type III) tear or failure of extensive conservative management after a partial UCL tear. UCL reconstruction remains the gold standard for operative management of a complete UCL tear. Both the modified Jobe technique and the docking technique have shown excellent results with return-to-play rates between 80% and 90%. Recently, UCL repair with collagen-dipped suture tape augmentation has gained some popularity. However, long-term results are lacking, especially in elite athletes. Time to return to play after UCL reconstruction is variable. Most athletes return to full competition in 12 to 15 months, although professional pitchers often require 15 to 18 months to return to their previous level of competition. Revision rates remain low (1%-7%), yet the revision rate is expected to rise as the number of UCL reconstructions performed in the United States continues to increase.

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#### 【Curriculum Vitae】

Dr. Joshua Dines is an orthopedic surgeon who specializes in sports medicine and shoulder surgery. He has been featured in New York Magazine's Best Doctors and Castle Connolly's Top Doctors in America. Dr. Dines is an Associate Team Physician for the New York Mets and serves as the medical director for the Invesco Series QQQ Tennis Tour. He was previously an Associate Team Physician for the New York Rangers and the doctor for the US Davis Cup tennis team. He is one of only 200 active members, worldwide, of the American Shoulder and Elbow Society.

Prior to joining the Sports Medicine Institute at HSS, Dr. Dines graduated from Dartmouth College and Weill Cornell Medical College. He did his residency at HSS where, during his final year, he won the award for excellence in research. Dr. Dines did a sports medicine fellowship at the prestigious Kerlan Jobe Clinic in Los Angeles where he worked as part of the medical staff for the LA Dodgers, the LA Kings and Anaheim Ducks Hockey teams, and served as an assistant to the team physician of the LA Lakers.

### English Papers 2 (L2-3)

## Return-to-play outcomes in high school baseball players after ulnar collateral ligament injuries

Jun Sakata<sup>1</sup>, Masaki Akeda<sup>2</sup>, Tetsuya Yamazaki<sup>2</sup>

<sup>1</sup>Department of Rehabilitation, TOYOTA Memorial Hospital, Japan,

<sup>2</sup>Department of Orthopedic Sports Medicine, Yokohama Minami Kyosai Hospital, Japan

**BACKGROUND:** Ulnar collateral ligament (UCL) injuries are common in baseball pitchers. The purpose of this study was to evaluate changes to medial elbow joint laxity under valgus stress, as well as under valgus stress with flexor digitorum superficialis (FDS) contraction, and its ability to predict rehabilitation outcomes.

**METHODS:** Sixty-one UCL injuries were diagnosed. All patients were high school students who initially received rehabilitation treatment. Rates of return to play and return to the same level of play or higher (RTSP) were calculated and correlated with joint gapping under the following conditions: elbow gravity valgus stress and intra-articular ring-down artifact (RDA) at rest, elbow gravity valgus stress, and elbow gravity valgus stress with maximum FDS contraction.

**RESULTS:** The overall RTSP rate in patients receiving nonoperative treatment was 83.6% (51 of 61 patients). The RDA at rest significantly differed between the RTSP and non-RTSP groups, with an odds ratio of 17.5. This result indicated that the RDA could be a predictor of rehabilitation outcomes. Moreover, there were significant differences in the RDA under gravity valgus stress conditions with FDS contraction between the 2 groups, with an odds ratio of 98.0. Multivariate logistic regression analysis identified 1 variable (RDA under valgus stress with FDS contraction) as the most significant predictive factor for successful treatment of UCL elbow injury.

**CONCLUSIONS:** UCL injuries in high school baseball players can be successfully treated nonoperatively in most cases. Stress ultrasound with FDS muscle contraction can help predict the potential for RTSP.

### English Papers 2 (L2-4)

## Effect of difference in fixation methods of tendon graft and the microfracture procedure on tendon-bone junction healing

Satoshi Nezu<sup>1</sup>, Taichi Saito<sup>2</sup>, Yasunori Shimamura<sup>2</sup>, Toshifumi Ozaki<sup>2</sup>

<sup>1</sup>Department of Orthopaedic Surgery, Tottori City Hospital, Japan,

<sup>2</sup>Department of Orthopaedic Surgery, Okayama University, Japan

*Background:* There are generally two methods of fixation for tendon grafts used in ligament reconstruction: bone tunnel fixation and anchor fixation. The microfracture (Mf) procedure is a technique to induce bleeding from the bone marrow, and the bleeding may contain cells with differentiation potential. However, few studies have compared the effects of the Mf procedure with those of the fixation methods. This study aimed to evaluate the effectiveness of the Mf procedure on junction healing of tendon graft and two fixation methods.

*Methods:* We used 20 rabbits to evaluate tendon and bone healing in a peroneal tendon graft model. The rabbit models were divided into five groups according to the combination of tendon graft fixation method and Mf technique as follows: control group (C, n=4), bone tunnel fixation without Mf procedure group (BT-Mf, n=4), bone tunnel fixation with Mf procedure group (BT+Mf, n=4), anchor fixation without Mf procedure group (A-Mf, n=4), and anchor fixation with Mf procedure group (A+Mf, n=4). All animals were sacrificed at 4 weeks postoperatively. The specimens underwent histological evaluation, mRNA analysis and biomechanical testing at the tendon-bone junction.

*Results:* BT+Mf and A+Mf groups showed healing with fibrocartilage formation with significant increase in type 2 collagen, Scleraxis, and Sox9 at the tendon-bone junction. In biomechanical tests, the BT+Mf and A+Mf groups showed significantly increased tensile strength compared with the BT-Mf and A-Mf groups (BT+Mf group, 21.6±1.7 N; A+Mf group, 22.5±2.3 N vs. BT-Mf group, 12.3±2.4 N; A-Mf group, 11±2.3 N).

*Conclusion:* The Mf procedure resulted in fibrocartilage formation at the tendon-bone junction in the BT and anchor fixation and improved the fixation strength at 4 weeks.