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INTRODUCTION

College level athletes start intense training and competition at a young age placing a high demand on their bones and joints. With more young adults aiming to play sports at an elite level, there is growing pressure to achieve athletic dominance early and quickly. With this pressure there are more athletes starting their collegiate careers having already sustained either chronic overuse injuries, acute injuries, or both. Despite the well-researched risks of continued load on previously injured joints, trainers, coaches, and athletes continue to value playing “through the pain” or “with minor injuries” to maximize participation and gain experience often dismissing the risk of additional injury, reinjury, and potential for long term joint disease.

PURPOSE

The goal of this study was to analyze athlete intake forms (history and physicals, H&Ps) to determine injury rates, interventions (surgery versus intra-articular injection), trends in return to sport (RTS), and differences based on sport and sex. We hypothesized that the mainstream popularization of “minimally invasive” procedures such as intra-articular injections (platelet rich plasma (PRP), corticosteroids, and hyaluronic acid (HA)) would lead to more reports of joint injection and higher rates of re-injury and multiple treatments in patients that started their collegiate careers with a history of joint trauma requiring medical intervention.

METHODS

A retrospective chart review of annual athlete intake forms (H&Ps) was performed on 295 collegiate athletes entering a local Division 1 program between 2008-2016. When applicable, performance statistics were pulled from publicly available published sources. Group means are given as a descriptive statistics.

RESULTS

Of the 295 athlete intake forms that were analyzed, 79 across 10 sports (basketball, golf, gymnastics, hockey, lacrosse, skiing, soccer, swimming, tennis, and volleyball) had a pertinent history relating to orthopedic injury: surgery or injection treatment. Of the 79 athletes with a history of injury requiring prior documentation, there were 101 instances where medical treatment was recorded. 44 of the 101 treatments had return to sport (RTS) statistics. Athletes, regardless of sport, sex, or age had a significantly faster return to sport when treated with an intra-articular injection compared to surgery (2.767 weeks versus 22.40 weeks, p<0.001). We found no statistically significant difference between the rate of return to sport when comparing injury to the upper extremity (UE, 19.07 weeks) or lower extremity (LE, 13.99 weeks, p>0.05).

Females, on average, had a quicker return to sport than males but the result was not statistically significant (16.59 versus 16.80, p>0.05).

Additionally, we found that soccer players were the most likely to undergo surgery (48 injured, 12 sought treatment, with 14 of 15 treatments listed as surgical). Whereas in athletes who sought treatment, golfers (2 of 2), gymnasts (8 of 13), hockey players (10 of 19), and lacrosse players (10 of 19) were the most likely to opt for intra-articular injection. The sports that were most likely to report two-injury athletes were gymnastics (2 of 16 injured), hockey (3 of 28 injured), and skiing (2 of 22 injured). Hockey had the highest number of multiple treatment athletes (3 of 11 that had intervention) and three injury athletes (1 of 28 injured).

The most common injuries reported were: UE, all: shoulder labrum tears (10 of 45 H&Ps listing it explicitly; the shoulder was the most common area of UE injury [21 of 45]) and LE, all: ACL tear (10 of 51 H&Ps listing it explicitly; the knee was the most common location of LE injury [23 of 51]).

RESULTS: INJURY AND INTERVENTION SUMMARY

Sport	M	F	Total	UE	LE	Surgery	Injection	Avg post-op RTS
Basketball	4	7	11	7	4	7	4	6.4 mo
Golf	2	0	2	1	1	0	2	N/A
Gymnastics	0	12	12	6	6	5	7	6 mo
Hockey	16	0	16	8	8	9	10	4 mo
Lacrosse	10	9	19	8	11	9	10	5.3 mo
Ski	3	4	7	1	6	5	2	6.2 mo
Soccer	6	9	15	6	9	14	1	4.6 mo
Swim	1	2	3	1	2	2	2	2 mo
Tennis	1	2	3	2	1	2	1	1 mo
Volleyball	0	8	8	3	5	6	2	5 mo
Summary	43	53	96	43	53	59	41	4.5 mo

Figure 2: Injury sites that had recorded interventions and RTS data (n_t=44)

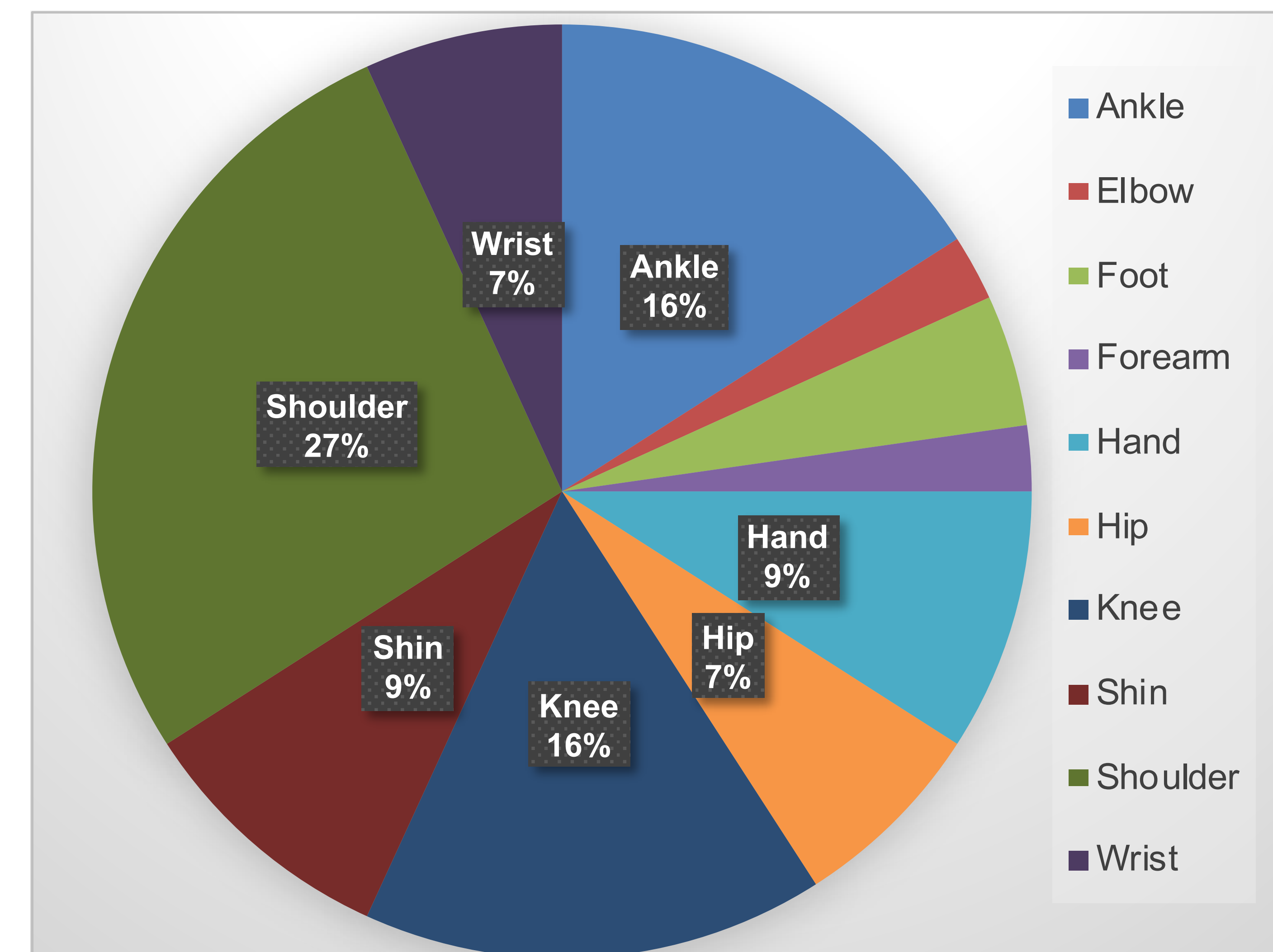
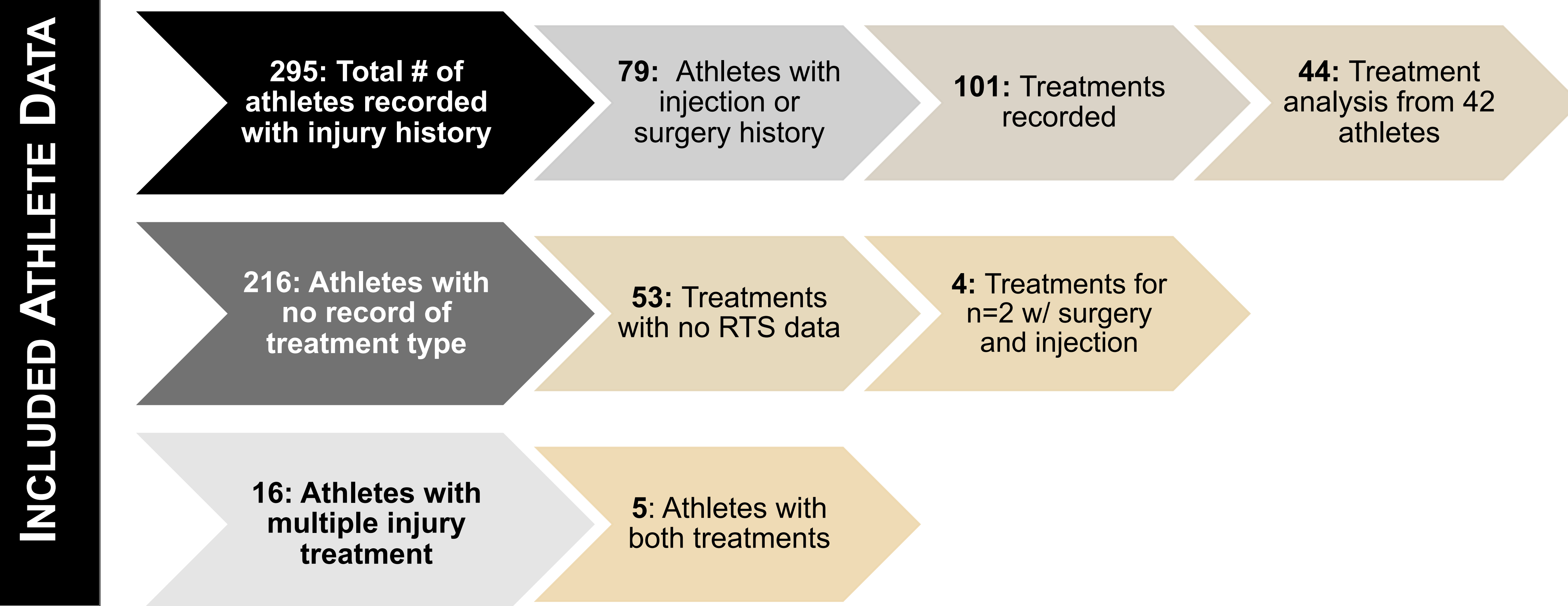


Figure 1: Diagram of stratification of athlete injury and treatment type from available data. A final n of 44 was included in the final analysis.



CONCLUSIONS

This study serves as a pilot to emphasize the need for additional research investigating the frequency and outcomes of joint interventions in athletes. We report descriptive statistics to show significant trends in how often athletes in certain sports are injured, what interventions are ultimately chosen for treatment, and how frequently young athletes are starting their college careers with an orthopedic history.

REFERENCES

- Duclos M, Guinot M, Colsy M, Merle F, Baudot C, Corcuff JB, LeBouc Y. High risk of adrenal insufficiency after a single articular steroid injection in athletes. Med Sci Sports Exercise 2007; 21: 1036-1043
- Eustace JA, Brophy DP, Gibney RP, Bresnihan B, Fitzgerald O. Comparison of the accuracy of steroid placement with clinical outcome in patients with shoulder symptoms. Ann.Rheum. Dis. 56:59-63, 1997
- Gommoll AH, Kang RW, Williams JM, Bach BR, Cole BJ. Chondrolysis after continuous intra-articular bupivacaine infusion: an experimental model investigating chondrotoxicity in the rabbit shoulder. Arthroscopy 2006; 22: 813-9
- Gommoll AH, Yanke AB, Kang RW, et al. Long-term effects of bupivacaine on cartilage in a rabbit shoulder model. Am J Sports Med 2009; 37: 72-7
- Greis PE, Legrand A, Burks RT. Bilateral shoulder chondrolysis following arthroscopy. A report of two cases. J Bone Joint Surg Am 2008; 90: 1338-44
- Hansen BP, Beck CL, Beck EP, Townsley RW. Postarthroscopic glenohumeral chondrolysis. Am J Sports Med 2007; 35:1628-34
- Jones JG. Achilles tendon rupture following steroid injection. J Bone Joint Surg Am 1985; 67:170