Recommendations for Driving After Right Knee Arthroscopy

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abstract

No established guidelines currently exist to assist orthopedic surgeons in determining when a patient may safely control a motor vehicle after undergoing simple right knee arthroscopy. Despite this lack of concrete evidence, premature postoperative driving could expose orthopedic surgeons to legal liability and, more importantly, patients to danger and further injury. Through questionnaires directed at physicians, patients, and insurance companies, the authors attempted to identify common postoperative management trends among orthopedic surgeons in an effort to better identify patterns that could help direct practice for the optimized treatment of patients after right knee arthroscopy.

Although 29.7% of physicians always incorporated postoperative driving instructions during routine preoperative consultation, 57% of physicians brought up these conversations half of the time or less. In addition, when the preoperative discussions were conducted, approximately 23.6% of physicians never initiated the conversation. The majority of physicians recommended driving after narcotics were discontinued (70%), when the patient felt they could subjectively control their vehicle (57.1%), and when postoperative symptoms would allow safe driving (38.8%); these achievements were most commonly reached at 1 week postoperatively.

After simple right knee arthroscopy, the common consensus indicates that patients may safely return to driving 1 week postoperatively when they are narcotic-free and feel safe to control their vehicle.
Currently, no established guidelines exist to assist orthopedic surgeons in determining when patients may safely control motor vehicles after simple right knee arthroscopy. Despite this lack of concrete evidence, premature postoperative driving could expose orthopedic surgeons to legal liabilities and, more importantly, patients to danger and further injury. Using questionnaires directed at physicians, patients, and insurance companies, the authors attempted to identify common postoperative management trends among orthopedic surgeons in an effort to better identify patterns that could help direct practice for the optimized treatment of patients after right knee arthroscopy. The authors hypothesize that these trends exist and may help guide physicians to increase postoperative driving safety.

**Materials and Methods**

All research was approved by the institutions’ review boards and performed in accordance with the ethical standards set forth by the host university committee on human experimentation. Three questionnaires were created and distributed to physicians, patients, or insurance companies. All questionnaires were specifically aimed at common practice of postoperative instruction after right knee arthroscopy.

A Web-based survey was distributed to 300 sports fellowship–trained orthopedic surgeons. The survey consisted of 5 questions that helped define surgeons’ practice and experience and the level and content of postoperative instruction regarding motor vehicle operation. Surgeons were instructed to answer all guideline-based questions for patients who underwent simple right knee arthroscopy, which was defined as arthroscopic procedures, including any combinations of partial meniscectomy, chondroplasty, or debridement. Any patients with additional ligamentous reconstruction, microfracture, open arthrotomy, hardware introduction, or any procedure performed on the left knee were excluded from this study.

A second survey was verbally administered by phone to patients who underwent simple knee arthroscopy in the previous 3 weeks. Patients were retrospectively identified from surgical schedules of 2 academic university practices and 1 ambulatory surgical center. Patients were asked questions regarding their interaction with their physician regarding postoperative driving instructions, with specific attention paid to the reasons and motivations patients identified to ignore specific doctors’ advice.
A final survey was administered by phone to the 5 largest national insurance providers in the 5 largest states in the United States. In each state, large cities were arbitrarily selected and residents were called. Representatives were asked to reveal the advice they routinely gave customers when asked for advice on when to safely and legally return to motor vehicle operation after right knee arthroscopy.

**RESULTS**

**Physician Survey**

Of the 250 orthopedic surgeons who were e-mailed the survey, 197 (79%) responded to the questionnaire completely. Among the physicians questioned, 166 (66.5%) were community based, whereas the remaining group (n=84; 33.5%) had some level of an academic involvement (Figure 1). Nearly three-quarters of physicians (n=182; 73.1%) performed more than 50 knee arthroscopies annually and 88.8% (n=222) of physicians surveyed performed more than 25 arthroscopies (Figure 2).

During routine preoperative consultation, 29.7% of physicians always incorporated postoperative driving instructions. Of the physicians surveyed, 57% brought up these conversations half of the time or less, 33.4% brought them up one-quarter or less of the time, and 3.1% of physicians never discussed this topic (Figure 3). When the preoperative discussions were conducted, approximately 23.6% (n=59) of physicians never initiated the conversation, whereas 20.5% (n=51) of physicians always discussed postoperative driving issues (Figure 4). Further subanalysis demonstrated that community-based physicians and those who performed more than 50 knee arthroscopic procedures annually discussed postoperative driving restrictions more commonly (Figure 5).

Recommendations to assist patients in determining when to safely resume driving varied, but some trends were identifiable. The majority of physicians recommended driving once narcotic use stopped (n=175; 70%), when patients felt they could subjectively control their vehicles (n=142; 57.1%), and when postoperative symptoms allowed for safe driving (n=97; 38.8%). Only 1.8% (n=5) of physicians routinely instructed their patients to consult their insurance company (Figure 6). This pattern was maintained when postoperative...
driving recommendations were stratified by arthroscopic practice type and surgical annual volumes (Figure 7). These achievements were most commonly reached at 1 week postoperatively.

**Patient Survey**

Sixty-nine patients were identified as undergoing simple right knee arthroscopy. Of the patients surveyed, 8% (n=20) received driving advice from their physicians and 88% (n=220) of this population followed that advice. Of the patients who received advice and followed it, the majority stated that they began driving when they felt comfortable (a combination of their symptoms allowing and feeling comfortable controlling the vehicle). This subjective value corresponded with patients returning to driving most often within 4 to 7 days postoperatively (Figure 8). Of the 12% (n=30) who ignored physician advice, all patients reported that they had obligations that necessitated early driving.

A linear regression with dummy variables was performed to determine whether a relationship existed between the length of time that patients waited to begin driving and their more subjective reasons for starting to drive, such as not taking narcotics or being comfortable being control of vehicles. Patients who followed 2-fold advice (ie, not taking narcotics and being comfortable) exhibited a longer time to driving than they would have if they had only followed a singular piece of advice from their physicians (ie, not taking narcotics or being comfortable). It followed that if patients did not use either of those pieces of advice, the time to driving was less ($F_{1,36}=8.25; P=.007$) (Figure 9).

**Insurance Company Survey**

Insurance representatives were contacted in 5 states (California, Texas, Ohio, Florida, and New York) in more than 25 cities total. All 117 representatives surveyed said their company either offered no formal policy or had no training or qualification to offer medical advice, and all individuals
categorically gave no instruction on postoperative driving instruction.

**Discussion**

No true gold standard exists to govern orthopedic surgeons regarding driving restrictions after simple right knee arthroscopy; however, certain trends seem to predominate postoperative management. Although many surgeons bring up postoperative driving instructions during preoperative counseling, a high percentage of these discussions occur less than half the time. In addition, when these discussions are had, they are initiated by the patient 60% of the time. Interestingly, postoperative driving instruction seems to occur and be initiated more frequently by both community-based and high-volume physicians.

Although physicians seem to share some similar guidelines in determining when patients may safely return to driving, there was still a tremendous spectrum of parameters that physicians seemed to incorporate in this decision. Although approximately 2% of physicians ask patients to contact their insurance company for postoperative instruction on driving, insurance companies do not offer patients any information that is helpful in determining when they should safely return to driving.

The current study is not the first to examine postoperative driving after knee arthroscopy. A prospective patient questionnaire was administered in England and reported that 65% of patients said postoperative driving guidelines were addressed preoperatively. In addition, large inconsistencies were found in surgeon advice for the postoperative resumption of driving. However, this study did not specify the sidedness of the operated extremity, and microfracture operations were included in the study population.

Although multifocal, 1 factor that is paramount in the ability to safely drive is the normalization of reaction breaking times. Research has shown that breaking times decrease after lower-extremity surgery, with normalization occurring after knee arthroplasty (4–6 weeks), ankle fracture (9 weeks), and first metatarsal osteotomy (6 weeks). However, these procedures include either surgical cutting or fixation of bone. Accordingly, the re-
Results from these studies may be less applicable for simple knee arthroscopy.

Braking times after anterior cruciate ligament (ACL) reconstruction have also been studied. Gotlin et al\(^9\) monitored brake response time, 6-meter walk time, knee range of motion, pain, and joint effusion for 10 weeks after ACL reconstruction. They found normalization of these parameters between 4 to 6 weeks postoperatively.\(^9\) In another study examining the driving reaction time using a computer-linked automobile simulator, 73 patients who underwent ACL reconstruction were compared with 25 control patients; interestingly, normalization was achieved at 2 weeks postoperatively for left ACL patients and at 6 weeks postoperatively for right ACL patients.\(^10\) Although ACL reconstruction is commonly performed with arthroscopic assistance, it should be considered that autograft harvest requires larger incisions compared with simple arthroscopy and that the bone is cut for tunnel creation during these procedures.

Only 1 study has evaluated driving reaction time after simple right knee arthroscopy. Using a computer-linked car simulator, Hau et al\(^11\) evaluated 30 patients preoperatively and 1 and 4 weeks postoperatively. Aside from breaking time, standing and stepping tests were evaluated to replicate the actions of emergency breaking in a way replicable in the clinical setting that did not require a simulator. These values were compared with a group of 25 control patients. Values were uniformly higher at all measured increments, and the increase in braking time at 1 week postoperatively was estimated to generate a 5.2-m (17 ft) larger stopping distance for a vehicle traveling at 100 km/hour (62 mph). The authors concluded that a 1-week return delay for motor vehicle operation was likely safe, although 30% of patients reached baseline values 1 month postoperatively. In addition, the standing and stepping tests correlated with normalization of breaking times.\(^11\)

Driving after surgery is a ubiquitous postoperative concern. Although the current questionnaire and literature review offers no concrete evidence to steer practice, the current authors agree with the common consensus of allowing patients to return safely to driving 1 week postoperatively when they are narcotic-free and feel safe to control their vehicles.

This investigation has several limitations. The questionnaires reflect current practice. The retrospective component of the patient interview may have introduced a recall bias that cannot be accounted for, and there is no way to confirm that the physician or insurance company responses actually reflect the actions of these individuals. In addition, the responses generated from this study should not be extrapolated to other left knee arthroplasty or lower-extremity surgeries, and the conclusions do not reflect the incorporation of any type of lower-extremity immobilizer that could be used by clinicians.

The current authors believe their definition of simple knee arthroscopy, arthroscopic partial meniscectomy, chondroplasty, or debridement includes procedures that have similar postoperative swelling and impairment profiles. This selection is subjective. Anecdotally, procedures requiring large arthrotomies or procedures involving the manipulation of or the creation of bone fracture tend to introduce or reflect a much larger soft tissue or bone injury associated with increased swelling and, potentially, an effect on postoperative swelling and rehabilitation.

**Conclusion**

After simple right knee arthroscopy, common consensus indicates that patients may safely return to driving 1 week postoperatively when they are narcotic-free and feel safe to control their vehicles.

**References**


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