

Research Article

Does Preoperative Suzetrigine Impact ASC Opioid Consumption For Total Joint Arthroplasty?

Louis Battista, B.S.¹, Andrew Wickline, M.D.^{1b}

¹ Genesee Orthopedics & Plastic Surgery Associates, PC

Keywords: total knee, TKA, total hip, THA, perioperative management, pain, opioid, suzetrigine

<https://doi.org/10.60118/001c.162171>

Journal of Orthopaedic Experience & Innovation

Vol. 7, Issue 2, 2026

Total knee arthroplasty (TKA) and total hip arthroplasty (THA) are some of the most commonly performed surgical procedures. Due to the soft tissue damage sustained intraoperatively, pain is a common occurrence which is frequently treated with opioid analgesics. Conventional wisdom still espouses large numbers of opioids for post-op pain relief. However, opioid related adverse events such as addiction, mental status changes, fall risk, and sedation remain a problem. Suzetrigine is a novel non-addictive FDA approved medication to treat acute pain. Lowering opioid use in the early phases of recovery has been shown to reduce long-term opioid use for patients.

This retrospective study evaluated day of surgery opioid requirements for outpatient TKA and THA arthroplasty patients. Patients in the experimental cohort received a 100 mg dose of suzetrigine pre-operatively which the control cohort did not receive. The percentage of patients receiving opioids and the dosage of opioid was recorded during the different recovery phases. Preoperative administration of suzetrigine consistently reduced the percentage of patients requiring opioids at different phases of recovery as well as the total MME consumed per patient in the surgical facility. For patients receiving a TKA, the total required dosing went from 68.8 MME to 53.1 MME ($p=0.0002$) showing a 23% reduction. For patients receiving a THA, the total required dosing went from 78.4 MME to 51.8 MME ($p<0.0001$) showing a 34% reduction. This study suggests that suzetrigine significantly reduces day of surgery opioid use and may have implications for early post up recovery as well.

INTRODUCTION

Total knee arthroplasty (TKA) and total hip arthroplasty (THA) are common surgical interventions for treating end-stage osteoarthritis in patients that have not responded to

conservative treatment such as physical therapy or injections (Petterson et al. 2024). TKA and THA are among the most frequently performed procedures worldwide, ranking second and fourth, respectively, in most frequently performed procedures in the operating room with 1 million TKA and 594,000 THA cases performed in 2022 (McDermott

a Louis Battista graduated from Siena University in 2025 and currently attends SUNY Upstate Medical University.

[Visit Louis Battista](#)

[Connect with Louis Battista on LinkedIn](#)

[Conflicts of Interest Statement for Louis Battista](#)

b Andrew Wickline is a fellowship-trained community surgeon specializing in outpatient total knee and hip arthroplasty. Over the last decade, he has have dedicated his nights and weekends to understanding the patient journey. He views this as 6 weeks before surgery to 12 weeks after surgery: 3024 hours that all deserve careful thought and evaluation for optimization potential. Over the years he has improved the patient post-op swelling and pain experience with hopes of achieving higher satisfaction and lower complications. His mission and goal is post-op recovery that is free from opioids and their attendant, well documented risks. An article just published in 2026 suggests 1 in 11 total joint patients will still be using opioids 1 year later. At current annual rates of arthroplasty, that is 144,000+ newly addicted patients every year. This is untenable and must be addressed. Aut viam inveniam aut faciam.

[Visit Andrew Wickline](#)

[Conflicts of Interest Statement for Andrew Wickline](#)

[Visit the Open Payments Data Page for Andrew Wickline](#)

and Liang 2021). By 2040, TKA cases are projected to rise to 2.7 million cases annually and THA to 2.1 million (Scuderi and Mont 2025). The goals of TKA and THA are to reduce joint pain, restore joint function, and improve patients' quality of life (Varacallo et al. 2024). Due to the soft tissue damage sustained during surgery, patients experience high levels of pain and inflammation post-op. Patients often report severe post-op pain with 58% of patients reporting severe pain after a TKA and 47% of patients after a THA (Wylde et al. 2011). Opioids have long been the primary medication used to manage post-op pain. However, opioids carry well-documented risks, including dependence, constipation, mental status changes, fall risk, and respiratory depression.

Orthopedic surgeons account for 7.7% of all opioid prescriptions in the United States, ranking as the highest prescribing surgical specialty, and the third highest prescribing specialty, following family physicians and internists (Waljee et al. 2023). Mismanaging pain can lead to patients developing an opioid addiction; several studies have shown that as much as 69% of patients are on opioids at least 90 days after their TKA and 20% for THA (Ward et al. 2022; Tay et al. 2021). Reducing opioid use should be a top priority for physicians, as opioid overdoses made up 80,000 out of 105,000 drug overdoses in 2023 (Centers for Disease Control and Prevention (CDC), 2024). Other side effects of opioids include sedation, nausea, constipation and respiratory depression (CDC, 2024). Notably, opioid prescribing patterns following TKA vary widely, with some studies reporting up to 60% higher discharge doses compared to other surgical procedures (Dawson et al. 2024). Opioid consumption following total joint arthroplasty remains among the highest of all surgical procedures, with patients consuming an average of 24.0–85.3 pills after TKA and 33.1 pills after THA (Dawson et al. 2024; Atwood et al. 2021).

Patients receiving IV opioids in the Post-Anesthesia Care Unit (PACU) have a higher likelihood of filling an opioid prescription within 90 days after their surgery (Daigle et al. 2025). Even seemingly harmless opioid prescriptions carry significant risk, as the likelihood of long-term use is approximately 6% after just one day of therapy and increases to nearly 20% after only 10 days of use (Shah et al. 2017). Given the downsides associated with opioid prescribing, physicians should look for non opioid based interventions to control pain for patients after a total joint arthroplasty.

Suzetrigine (Journavx), a novel sodium channel blocker, represents a new option for pain management. This orally administered agent targets voltage-gated sodium channels (VGSCs) in the peripheral nervous system, specifically $Na_v1.8$, which play a key role in initiating and transmitting nociceptive signals to the central nervous system. Blocking these channels reduces the excitability of pain-transmitting neurons without affecting motor function. The target receptor, $Na_v1.8$, is not expressed in the brain and therefore mitigates opioid related adverse effects. Suzetrigine, unlike opioids, does not interact with μ receptors, which are linked to addiction.

The goal of this study was to determine if the addition of suzetrigine to an effective, previously described, low swelling, low opioid peri-operative protocol would provide additional reductions in rescue opioid medications in first and second stage recovery as compared to baseline.

METHODS

This study was designed as a retrospective, non-randomized, cohort, single-site study.

The site used was Apex Surgical in Westmoreland, NY. All total joint procedures were conducted by a single surgeon. The study protocol was reviewed and approved by the Institutional Review Board for the protection of Human Subjects of Mohawk Valley Health System in Utica, NY. A total of 240 patients were included in the study: 120 with TKA and 120 with THA. Patients were divided into control (no suzetrigine) and experimental (suzetrigine) groups within each procedure type. Each cohort consisted of 60 patients. The control cohort comprised the last 60 cases performed before the introduction of suzetrigine, while the experimental cohort included the first 60 cases following implementation of preoperative suzetrigine administration. Patients in the experimental cohort received one dose of 100mg of suzetrigine PO preoperatively at least 90 minutes before the incision was made.

All patients in both cohorts underwent cemented TKA with kinematic alignment, using the same prosthesis. All cases included patella resurfacing without tourniquet use. All patients undergoing a THA had an anterior approach using cementless implants, using a specialized table and capsulectomy. The surgeon had previously developed separate multimodal perioperative protocols for TKA and THA, which were used for all cohorts (Wickline et al. 2023; 2025; 2020). Patients received the same education booklet, watched the same pre- and postoperative videos, and followed the same at-home physical therapy protocol based on their surgery.

Patient demographic information was recorded, including age, surgical side, sex, BMI and ASA score. For all patients, the dose of fentanyl administered intraoperatively PACU was recorded. The same standard anesthesia protocol was used intraoperatively for all cohorts, which included general anesthesia using propofol with sevoflurane and fentanyl. Any additional fentanyl use in the PACU or opioid use in phase two of recovery was also recorded for patients. Patients who reported a pain score ≥ 7 and stayed awake were given additional opioids as part of the pain protocol. The total morphine milligram equivalent (MME) was calculated for patients using the conversions in the NYS Prescription Monitoring Program Registry. The conversion rates used were 0.1 MME/mg for Tramadol, 1.0 MME/mg for Hydrocodone, 1.5 MME/mg for Oxycodone and 0.3 MME/mcg for IV fentanyl. The opioid use was then compared for each procedure between the control and experimental cohorts.

RStudio (version 2024.12.0+467) was used to perform all statistical analyses and make all graphs. Chi-square tests were used to determine significance for the percentage of

Table 1A. Patient demographic and comorbidity profiles in control and suzetrigine cohorts undergoing TKA.

Demographic	Control TKA (n=60 ^a)	Journavx TKA (n=60 ^a)	p-value
Age	70 (64.25, 76)	70.5 (65.25, 75)	0.825
BMI	30.1 (26.9, 34.9)	30.78 (27.45, 34.62)	0.782
BMI >30	51.6% (31)	58.3% (35)	0.462
Female	56.7% (34)	68.3% (41)	
Male	43.3% (26)	31.6% (19)	
ASA II	41.7% (25)	33.3% (20)	
ASA III	58.3% (35)	66.6% (40)	

^aMedian (Interquartile Range)**Table 1B. Patient demographic and comorbidity profiles in control and suzetrigine cohorts undergoing THA.**

Demographic	Control THA (n=60 ^a)	Journavx THA (n=60 ^a)	p-value
Age	66 (60, 72)	68 (61, 73.75)	0.450
BMI	28.5 (25.1, 33)	28.76 (25.4, 32.2)	0.427
BMI >30	43.3% (26)	36.7% (22)	0.456
Female	53.3% (32)	56.6% (34)	
Male	46.6% (28)	43.3% (26)	
ASA I	1.7% (1)	0% (0)	
ASA II	48.3% (29)	51.6% (31)	
ASA III	50.0% (30)	48.3% (29)	

^aMedian (Interquartile Range)

patients taking opioids during each phase of recovery. A Welch's t-test was used when comparing fentanyl use and MME consumed.

RESULTS

In total, 240 patients were enrolled in the study: 120 TKA and 120 THA. Each cohort was comprised of 60 patients. There were no significant differences in the demographic or comorbidity profiles between the control and suzetrigine groups within either the TKA or THA cohort ([Table 1A](#) and [Table 1B](#)).

The dose of fentanyl was recorded for patients undergoing a TKA. There was no difference in the intraoperative fentanyl that was used between the experimental and control cohort ($p=0.14$) ([Figure 2](#)).

In the PACU, following a TKA, 51.7% of patients in the control cohort needed additional fentanyl compared to 20% in the experimental cohort ($p=0.0006$) ([Figure 1](#)). The patients in the control cohort received an average of 39.2 mcg of fentanyl per patient compared to 10.4 mcg per patient for the experimental ($p=0.0006$) ([Figure 2](#)).

In phase 2 recovery, 55% of TKA patients in the control cohort needed a rescue opioid compared to 21.7% of patients in the experimental cohort ($p=0.0004$) ([Figure 1](#)). The average MME given per patient in phase 2 was 3.2 for the control cohort compared to 1.2 for the experimental ($p=0.0001$) ([Table 2](#)).

**Figure 1. Percentage of patients requiring additional opioid use in the PACU and Phase 2 of recovery following a TKA.**

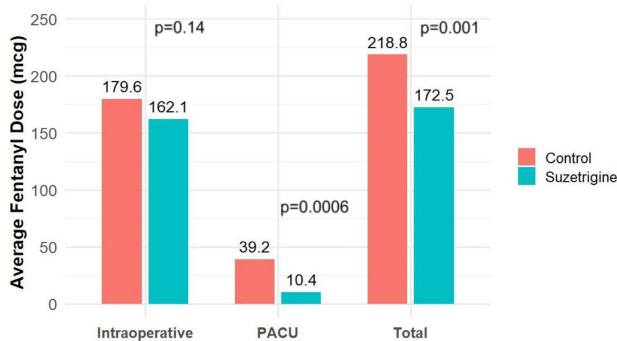
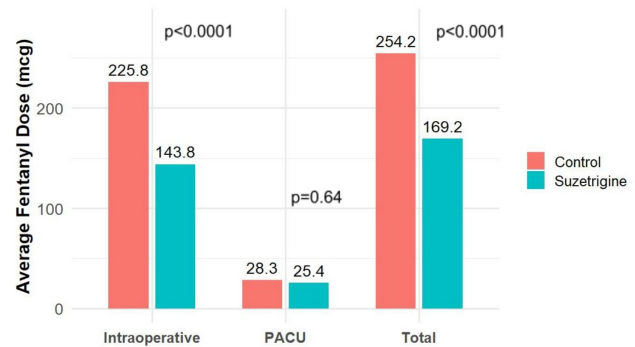
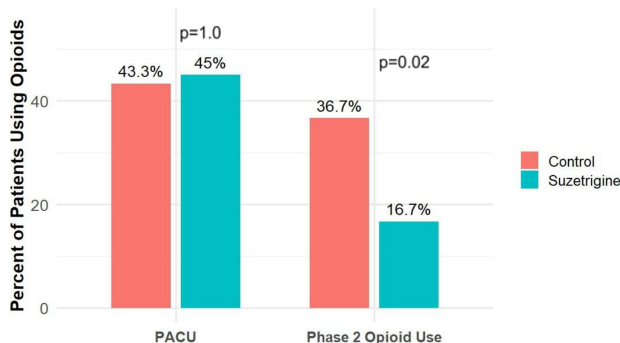
The total average fentanyl use per TKA patient was 218.8 mcg for the control and 172.5 mcg for the experimental ($p=0.001$) ([Figure 2](#)). The total MME given to patients while in the surgical center was 68.8 for the control vs 53 for the experimental showing a 23% decrease ($p=0.0002$) ([Table 2](#)).

The dose of fentanyl was recorded for patients undergoing a THA. The intraoperative fentanyl use per patient was 225.8 for the control cohort and 143.8 for the experimental cohort ($p<0.0001$) ([Figure 4](#)).

Following a THA, in the PACU there was no significant difference in the percentage of patients requiring additional fentanyl ($p=1.0$) ([Figure 3](#)). There was also no signifi-

Table 2. Summary of fentanyl and MME consumption for patients intraoperatively, in the PACU and Phase 2 of recovery following a TKA.

	Control (n=60)	Journavx (n=60)	p-value
Intraoperative Fentanyl Use Per Patient (mcg)	179.6	162.1	p=0.14
PACU Fentanyl Use Per Patient (mcg)	39.2	10.4	p=0.0006
Total Fentanyl Use Per Patient (mcg)	218.8	172.5	p=0.001
MME consumed Per Patient in Phase 2	3.2	1.2	p=0.0001
Total MME Per Patient	68.8	53.0	p=0.0002

**Figure 2. Average fentanyl dose between control and suzetrigine groups across intraoperative, PACU, and total perioperative phases following a TKA.****Figure 4. Average fentanyl dose between control and suzetrigine groups across intraoperative, PACU, and total perioperative phases following a THA.****Figure 3. Percentage of patients requiring additional opioid use in the PACU and Phase 2 of recovery following a THA.**

cant difference in the amount of fentanyl given per patient in the PACU ($p=0.64$) (Figure 4).

In phase 2 of recovery 36.7% of patients in the control cohort needed a rescue opioid compared to 16.7% of patients in the experimental cohort ($p=0.02$) (Figure 3). The average MME given per patient in phase 2 was 2.1 for the control cohort compared to 1.0 for the experimental ($p=0.02$) (Table 3).

The average fentanyl use per THA patient was 254.2 mcg for the control and 169.2 mcg for the experimental ($p<0.0001$) (Figure 4). The total MME given to patients while in the surgical center was 78.4 for the control vs 51.8 for the experimental showing a 34% decrease ($p<0.0001$) (Table 3).

DISCUSSION

Opioids were responsible for 80,000 overdose deaths in 2023, and it has been shown that opioid prescriptions for as little as 10 days put patients at a 20% risk for long term use (Shah et al. 2017; CDC, 2024). Suzetrigine appears to be a safe, non-narcotic intervention for controlling acute pain after a total joint procedure without opioid related adverse effects. The goal of this study was to determine if preoperative suzetrigine lowered opioid use intraoperatively, in the PACU, and in phase 2 recovery following a TKA or THA. Previous studies have associated patients who receive opioids in the PACU have a higher risk of filling an opioid prescription within 90 days of their surgery (Daigle et al. 2025).

Pain following joint replacement is multi-factorial. Early multimodal protocols added a periarticular local anesthetic, following the addition of NSAIDs and acetaminophen. These medications focused on specific pain receptors and made an impact on patient recovery (Stevenson and Wickline 2020). Subsequent protocols focused on swelling reduction to further enhance postoperative pain control and earlier functional recovery (Wickline et al. 2023; 2025). Since FDA approval of suzetrigine, anecdotal reports have suggested a range of responses from miraculous to negligible in regards to pain control and opioid usage. It is the senior author's opinion that, similar to adding acetaminophen or NSAIDs, surgeons should not expect to immediately transition from prescribing 100 oxycodone to opioid free recovery when prescribing suzetrigine.

Table 3. Summary of fentanyl and MME consumption for patients intraoperatively and in the PACU and Phase 2 of recovery following a THA.

	Control (n=60)	Journavx (n=60)	p-value
Intraoperative Fentanyl Use Per Patient (mcg)	225.8	143.8	p<0.0001
PACU Fentanyl Use Per Patient (mcg)	28.3	25.4	p=0.64
Total Fentanyl Use Per Patient (mcg)	254.2	169.2	p<0.0001
MME consumed Per Patient in Phase 2	2.1	1.0	p=0.02
Total MME Per Patient	78.4	51.8	p<0.0001

This study strongly suggests that preoperative suzetrigine blockade of peripheral nerve sodium channels ($Na_v1.8$) is a useful adjunct for day of surgery pain control. Clear opioid reduction was identified for both TKA and THA compared to control subjects. The total MME consumption in the facility per patient was reduced from 68.8 MME to 53.0 MME ($p=0.0002$) following a TKA showing a 23% reduction (Table 2). For patients receiving a THA this was reduced from 78.4 MME to 51.8 MME ($p<0.0001$) making a 34% reduction (Table 3). Follow-up studies measuring secondary measures such as failure to launch, time to discharge, nausea/vomiting, falls, and hypotension may provide further incentive to add suzetrigine to the preoperative multimodal cocktail. These findings imply that persistent blockade in the first several weeks of recovery may continue to provide opioid reduction compared to current protocols and warrant urgent research.

The limitations of this study were that all cases were performed by a single surgeon at one center and was retrospective in design. It would be ideal if other sites could perform a similar study to verify that suzetrigine is an effective intervention that reduces opioid use on the day of surgery. This would confirm that the medication works as intended. Its effects may be more measurable on the day of

surgery rather than measuring opioid reduction during the first several weeks postoperatively where significant variability in recovery protocols exist. Also, because this is a retrospective study, certain parameters, such as pain scores and preoperative function scores would have been helpful to collect and compare between cohorts. Additionally, patients enrolled in this study were not assessed for opioid naive status.

Future studies examining longer term outcomes will be useful for determining the overall impact suzetrigine may have on recovery after a TKA or THA. Patients enrolled should be opioid naive, as preoperative opioid use could impact opioid requirements on the day of surgery. It is recommended that day of surgery data should be collected and analyzed independently of data collected in the first several weeks after surgery due to the wide variations in recovery protocols.

In summary, adding suzetrigine as a preoperative intervention, appears to decrease the overall amount of narcotics that patients need, PACU opioid use, and the need for a rescue opioid in phase 2 of recovery.

Submitted: January 05, 2026 EDT. Accepted: May 13, 2026 EDT. Published: June 03, 2026 EDT.



This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CCBY-NC-ND-4.0). View this license's legal deed at <https://creativecommons.org/licenses/by-nc-nd/4.0> and legal code at <https://creativecommons.org/licenses/by-nc-nd/4.0/legalcode> for more information.

REFERENCES

- Atwood, K., T. Shackelford, W. Lemons, J. L. Eicher, B. A. Lindsey, and A. E. Klein. 2021. "Postdischarge Opioid Use after Total Hip and Total Knee Arthroplasty." *Arthroplasty Today* 7: 126–29. <https://doi.org/10.1016/j.artd.2020.12.021>.
- Centers for Disease Control and Prevention. 2024. "U.S. Overdose Deaths Decrease in 2023, First Time since 2018." National Center for Health Statistics, May 15. <https://www.cdc.gov/nchs/pressroom/releases/20240515.html>.
- Daigle, C., R. Branstetter IV, L. Van Deventer, et al. 2025. "In-Hospital Exposure and Opioids Prescribed after Total Knee Arthroplasty." *Journal of Arthroplasty* 40: 1–6.
- Dawson, Z., S. S. Stanton, S. Roy, et al. 2024. "Opioid Consumption after Discharge from Total Knee and Hip Arthroplasty: A Systematic Review and Meta-Analysis." *The Journal of Arthroplasty* 39: 2130–36. <https://doi.org/10.1016/j.arth.2024.01.063>.
- McDermott, K. W., and L. Liang. 2021. *Overview of Operating Room Procedures during Inpatient Stays in U.S. Hospitals, 2018*. No. 281. HCUP Statistical Brief. <https://hcup-us.ahrq.gov/reports/statbriefs/sb281-Operating-Room-Procedures-During-Hospitalization-2018.jsp>.
- Scuderi, G. R., and M. A. Mont. 2025. "Managing the New Centers for Medicare & Medicaid Services Reimbursement Model with the Projected Increase of Total Joint Arthroplasty." *Journal of Arthroplasty* 40 (11): 2779–80. <https://doi.org/10.1016/j.arth.2025.09.013>.
- Shah, A., C. J. Hayes, and B. C. Martin. 2017. "Characteristics of Initial Prescription Episodes and Likelihood of Long-Term Opioid Use — United States, 2006–2015." *Morbidity and Mortality Weekly Report*, ahead of print, March 17. <https://doi.org/10.15585/mmwr.mm6610a1>.
- Stevenson, M., and A. Wickline. 2020. "23-Hour TKA in 10 Opioid Pills or Less through 90 Days: A Non-Selected Prospective Consecutive One Year Cohort." *Journal of Orthopaedic Experience & Innovation* 1 (2).
- Tay, H. P., X. Wang, S. W. Narayan, J. Penm, and A. E. Patanwala. 2021. "Persistent Postoperative Opioid Use after Total Hip or Knee Arthroplasty: A Systematic Review and Meta-Analysis." *American Journal of Health-System Pharmacy* 78 (17): 1586–97.
- Varacallo, M. A., T. D. Luo, A. Mabrouk, et al. 2024. "Total Knee Arthroplasty Techniques." May 6. <https://www.ncbi.nlm.nih.gov/books/NBK499896/>.
- Waljee, J. F., V. Gunaseelan, M. C. Bicket, C. M. Brummett, and K. P. Chua. 2023. "Safety and Distribution of Opioid Prescribing by U.S. Surgeons." *Annals of Surgery* 277 (6): 944–51. <https://doi.org/10.1097/SLA.0000000000005802>.
- Ward, R., D. Taber, H. Gonzales, et al. 2022. "Risk Factors and Trajectories of Opioid Use Following Total Knee Replacement." *Knee Surgery & Related Research* 34: 18. <https://doi.org/10.1186/s43019-022-00148-0>.
- Wickline, A., W. Cole, L. Battista, J. Wielgomas, R. Southgate, and S. Ehmann. 2025. "Adoption of a Total Knee Arthroplasty (TKA) Multimodal Post-Operative Swelling Intervention Protocol Shows Significant Reduction in Single-Frequency Bioimpedance (SF-BIA) Values: A Pilot Study." *Journal of Orthopaedic Experience & Innovation* 6 (1). <https://doi.org/10.60118/001c.128538>.
- Wickline, A., W. Cole, M. Melin, S. Ehmann, F. Aviles, and J. Bradt. 2023. "Mitigating the Post-Operative Swelling Tsunami in Total Knee Arthroplasty: A Call to Action." *Journal of Orthopaedic Experience & Innovation* 4 (2). <https://doi.org/10.60118/001c.77444>.
- Wickline, Andrew, Kimberly Strong, and Jeffrey Murphy. 2020. "23-Hour Total Hip Replacement Requiring Only 3.5 Opioid Pills Through 6 Weeks: A Non-Selected Prospective Consecutive One Year Cohort." *Journal of Orthopaedic Experience & Innovation* 1 (2). <https://doi.org/10.60118/001c.14494>.
- Wylde, V., J. Rooker, L. Halliday, and A. Blom. 2011. "Acute Postoperative Pain at Rest after Hip and Knee Arthroplasty: Severity, Sensory Qualities and Impact on Sleep." *Orthopaedics & Traumatology: Surgery & Research* 97 (2): 139–44. <https://doi.org/10.1016/j.otsr.2010.12.003>.