

# **Pain Management for Sports Surgery- Can we be opioid- free?**

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*Life In Motion*

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- A large, light gray, stylized graphic of a person with their arms raised in a 'V' shape, positioned on the left side of the slide.
- I have no disclosures

# Program Objectives:

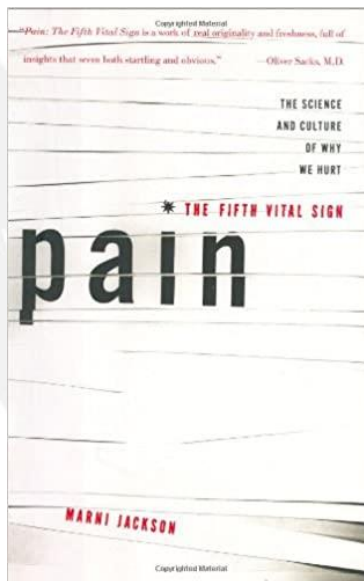
- To illustrate concerns regarding prescription of opioid medication for surgical patients.
- To examine alternative measures to consider in place of opioid medication.
- To assess the benefits of alternative surgical procedures to mitigate opioid use.

# Opioid Epidemic: Key Statistics

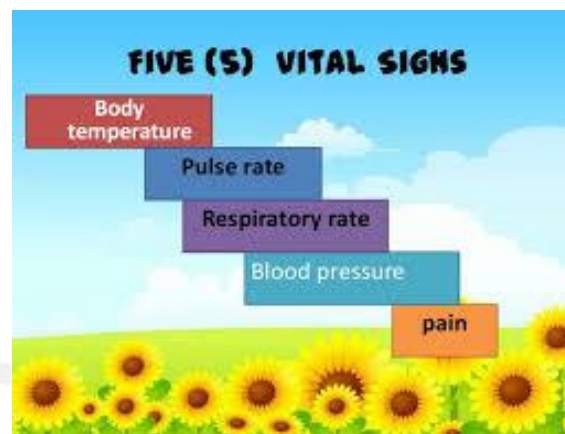
- Drug overdose is the leading cause of accidental death in the U.S.
- 47,055 lethal drug overdoses
- 18,893 overdose deaths related to prescription pain relievers;
- 10,574 overdose deaths related to heroin
- 21M people in U.S. with substance use disorder
- 207 million opioid prescriptions in one year
- \$880 million spent by opioid manufacturers and advocacy groups in lobbying/campaigning during past decade
- \$4 million spent by groups lobbying to limit opioids

# Where did this begin?

Around 1997



Vital Signs	
1st	Body Temperature
2nd	Pulse
3rd	Respiratory Rate
4th	Blood Pressure
5th	



# Where did this begin?

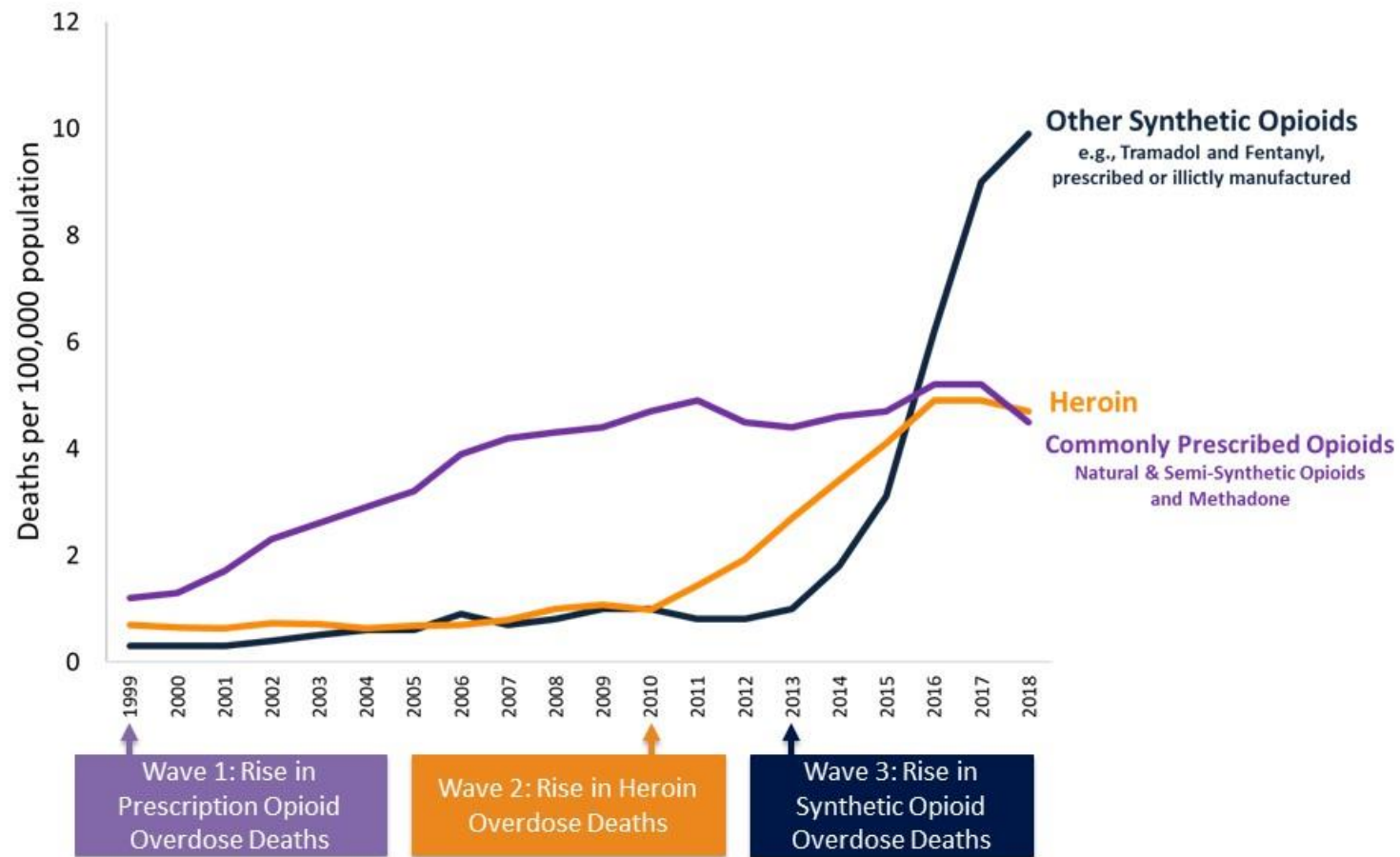
- 1999 California's legislature passed Assembly Bill 791, "Every health facility licensed pursuant to this chapter shall, as a condition of licensure, include pain as an item to be assessed at the same time as vital signs are taken. The pain assessment shall be noted in the patient's chart in a manner consistent with other vital signs"
- 2000, the 106th U.S. Congress passed H.R. 3244; title VI, Sec. 1603 established the "Decade of Pain Control and Research"
- Concerns were criticized by pain experts as "opioidphobic"
- The Joint Commission announced standards for health care organizations to improve pain management

# Consequences

- Physicians saw the standards as an intrusion into their practice
- 1995 approval of the new sustained-release opioid OxyContin. The FDA approved labeling saying that iatrogenic addiction was “very rare” and that the delayed absorption of OxyContin reduced the abuse liability of the drug
- The average consumption of opiates per patient increased from 40.4 mg (morphine equivalents) in 2000 to 46.6 mg in 2002, with the greatest increase in the PACU (6.5 mg to 10.5 mg)
- One study reported that the incidence of opioid oversedation increased from 11.0 to 24.5 per 100,000 inpatient days after the hospital implemented a numerical pain treatment algorithm

# Consequences

## 3 Waves of the Rise in Opioid Overdose Deaths



SOURCE: National Vital Statistics System Mortality File.



# Consequences

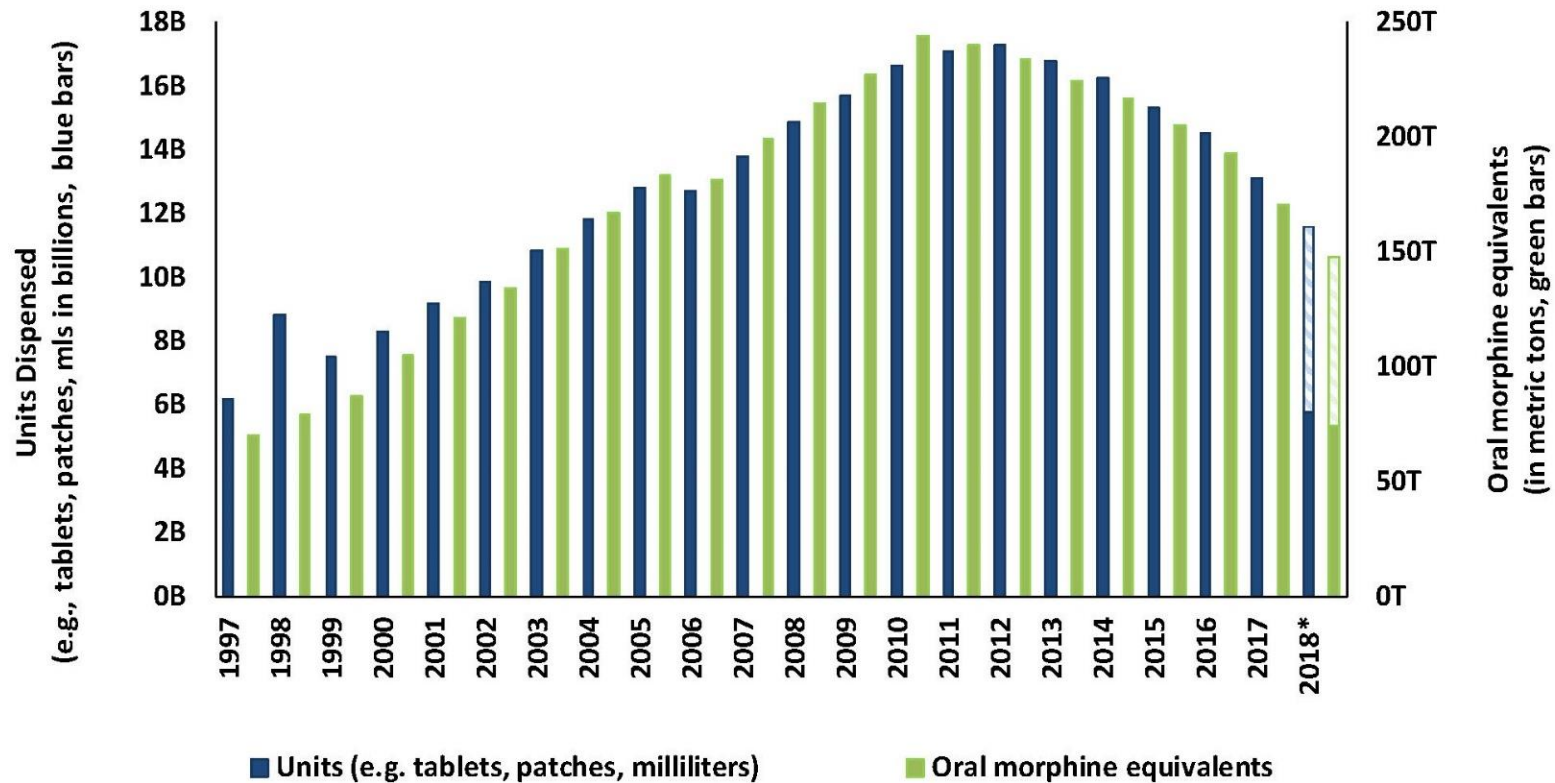


## **AMA Votes to Eliminate Pain as the Fifth Vital Sign**

Physician group says patient perception of pain is "too subjective" to be reliable

# Consequences

## Prescription Opioid Analgesics



**Figure 1: Estimated number of units (e.g., tablets, patches, milliliters) and calculated oral morphine equivalents (in metric tons) dispensed for opioid analgesic products from U.S. outpatient retail pharmacies, 1997 through projected year 2018\***

Source: IQVIA, National Prescription Audit™. 1997-June 2018.

One billion MME is equivalent to 1 metric ton of oral morphine equivalents

\*Projected year 2018 based on doubling the number of units and oral morphine equivalents dispensed during the first half of 2018 (Jan-June)

# Opioid Use in Athletes: A Systematic Review

*Sports Health Nov-Dec 2020*

- Rates of having ever used opioids ranged from 28.4% to 46.4%,
- Wrestling and football athletes were at significantly higher risk of nonmedical use of opioids
- Participating in high school sports was a predictor of opioid use and misuse while in college
- Lifetime heroin use among high school students ranged from 0.9% to 1.5% with involvement in ice hockey and wrestling being significantly associated with heroin use
- Rates of heroin use declined between 1997 and 2014, and daily sport participation was actually found to be protective against heroin use, though this relationship is not necessarily causal

# Opioid Use After Common Sports Medicine Procedures: A Systematic Review

*Sports Health May-Jun 2020*

	Shoulder Arthroscopy	Knee Arthroscopy	Hip Arthroscopy
Mean MME prescribed	610	197	613
Oral codeine—30-mg tablets, n	136	44	136
Oral hydrocodone—5-mg tablets, n	122	40	123
Oral oxycodone—5-mg tablets, n	81	26	82
Oral hydromorphone—2-mg tablets, n	76	25	77

	Shoulder Arthroscopy				Knee Arthroscopy				Hip Arthroscopy
	RCR	SLAP Repair	Bankart Repair	DCR/SAD	ACLR	Meniscal Surgery	TTO	MPFLR	Labral Repair + Acetabuloplasty ± Femoroplasty ± Microfracture
Sample size	145	19	11	20	47	294	6	7	96
Mean MME used	471	344	175	238	155	126	128	138	223
Oral codeine—30-mg tablets, n	105	76	39	53	34	28	28	31	50
Oral hydrocodone—5-mg tablets, n	94	69	35	48	31	25	26	28	45
Oral oxycodone—5-mg tablets, n	63	46	23	32	21	17	17	18	30
Oral hydromorphone—2-mg tablets, n	59	43	22	30	19	16	16	17	28

# Opioid Use After Common Sports Medicine Procedures: A Systematic Review

*Sports Health May-Jun 2020*

- >50% of patients discontinued opioid use within 3 days of surgery
- Only 36% of patients received preoperative instruction regarding disposal



# Prescription Opioids in Adolescence and Future Opioid Misuse

Richard Miech, PhD<sup>a</sup>, Lloyd Johnston, PhD<sup>a</sup>, Patrick M. O'Malley, PhD<sup>a</sup>, Katherine M. Keyes, PhD<sup>b</sup>, Kennon Heard, MD<sup>c</sup>

- 6220 subjects followed from 12<sup>th</sup> grade to age 23
- 33% increase in the risk of future opioid misuse after high school
- not, by itself, a major contributor to chronic opioid misuse, at least not by age 23



# Consequences

I might as well keep them in case anything happens.

People knew I took these medicines because I had torn my ACL, so they would ask me if I would sell them some, and I would tell them no, and I thought it was weird that they would ask me that.



# Surgery





# Knee arthroscopy with local anesthesia



- Intraarticular bupivacaine and morphine
- Lidocaine infiltration of portal
- IV sedation?

# Pneumatic tourniquet

- Post-op pain
  - Questionable
- Soft tissue inflammation
  - Questionable
- Arthroscopic visualization
  - No difference



# Cryotherapy

- Sterile pad
- Close to skin
- Temperature control

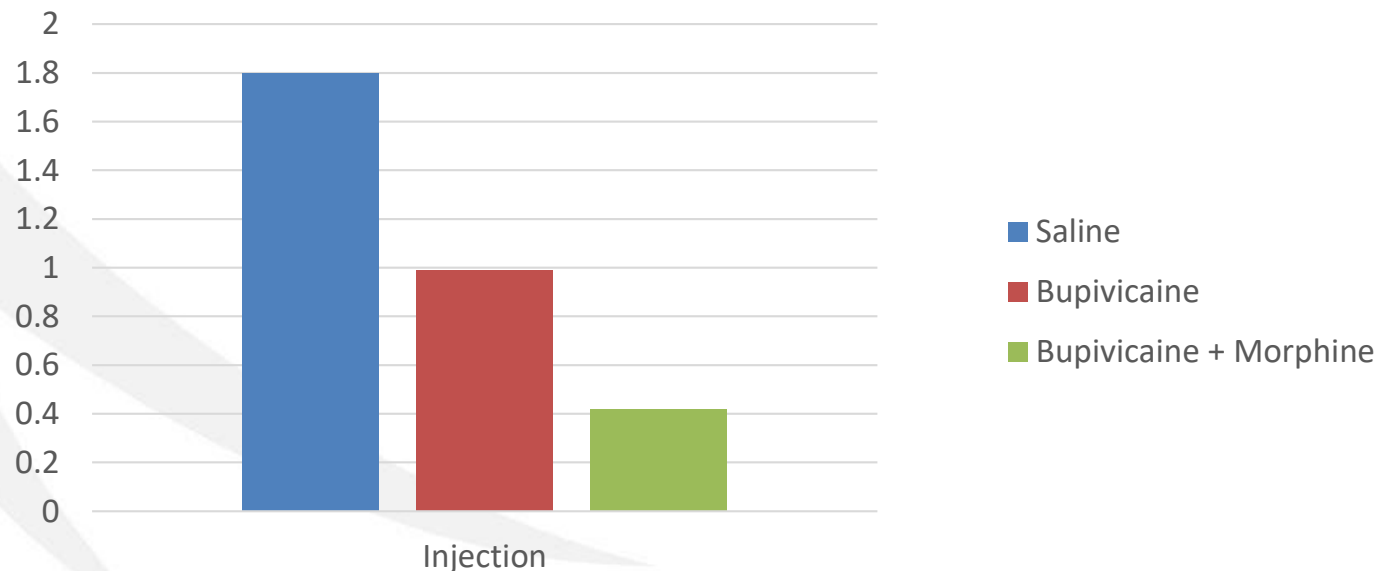


# Preemptive Analgesia: Its Role and Efficacy in Anterior Cruciate Ligament Reconstruction

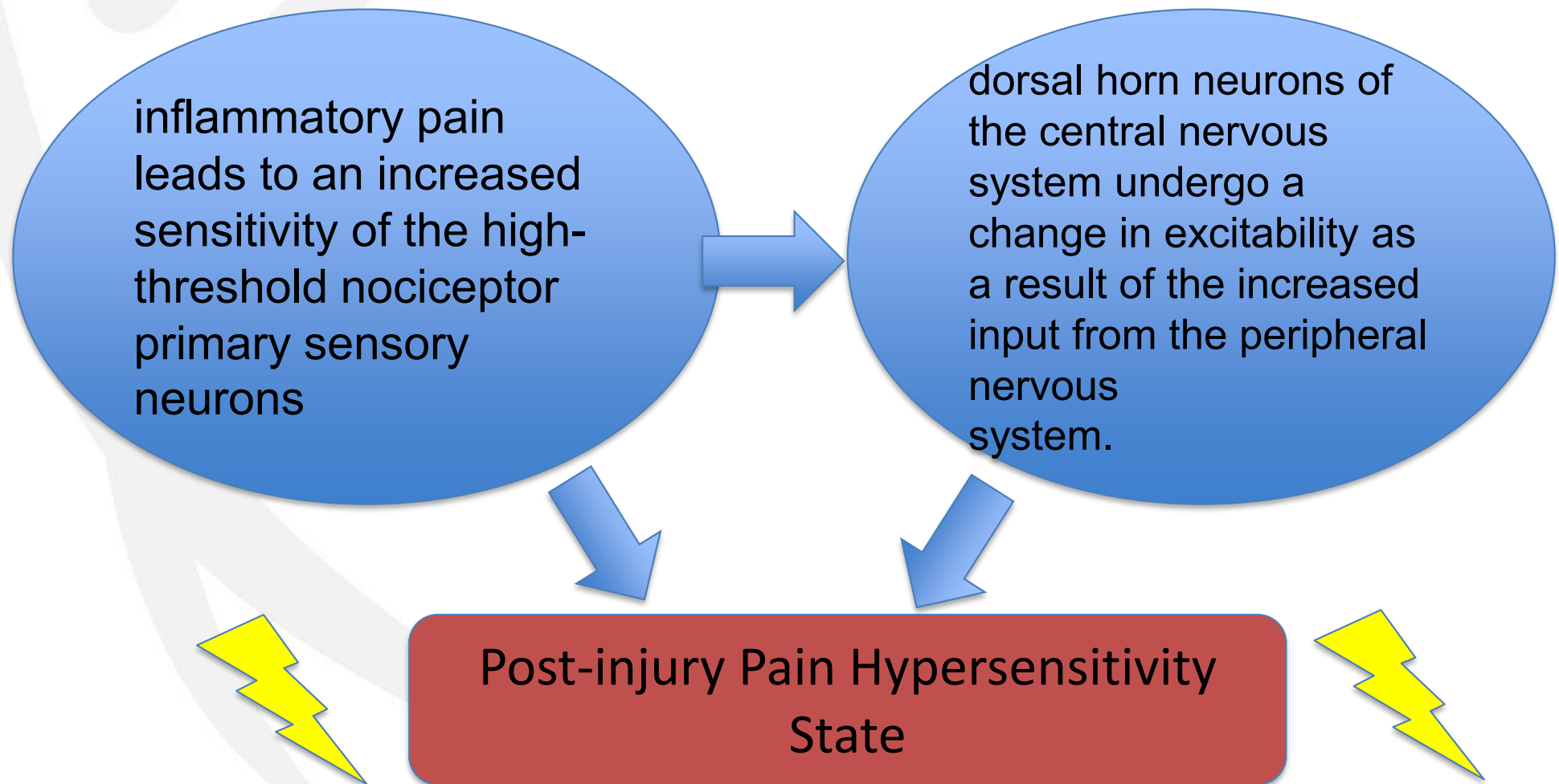
Charles J. Gatt, Jr.,\* MD, Richard D. Parker,\*† MD, John E. Tetzlaff,‡ MD,  
Martha Zorko Szabo,‡ MD, and Audrey B. Dickerson,\* BSN

*From the Departments of \*Orthopaedics, Section of Sports Medicine, and ‡Anesthesiology,  
The Cleveland Clinic Foundation, Cleveland, Ohio*

## Fentanyl in Recovery Room



# Preemptive Analgesia



# Multimodal Analgesia

Administration of 2 or more drugs that act by different mechanisms for providing analgesia. These drugs may be administered via the same route or by different routes.

opioids

local  
anesthetic  
techniques

Acetaminophen  
NSAIDs  
Cox2 inhibitors

# Anti-inflammatory medication and preemptive analgesia

- Ibuprofen, naproxen
  - Questionable efficacy
- Ketorolac
  - IV superior to placebo
  - No difference pre-op vs post-op
- Celecoxib
  - Superior to acetaminophen given pre-op



# Spinal and epidural anesthesia

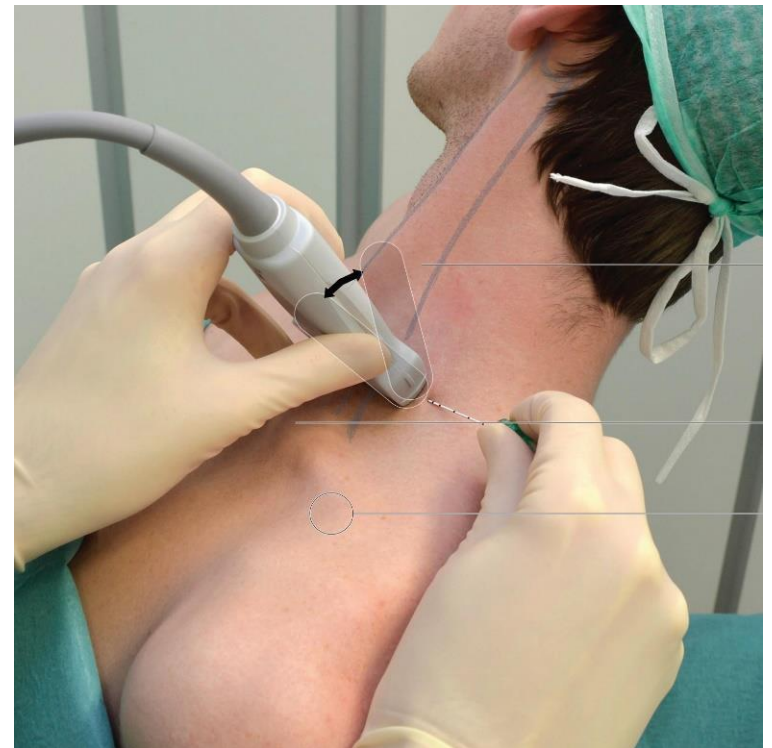
- Good pain control
  - Increased recovery time
  - Urinary retention
  - Falls risk





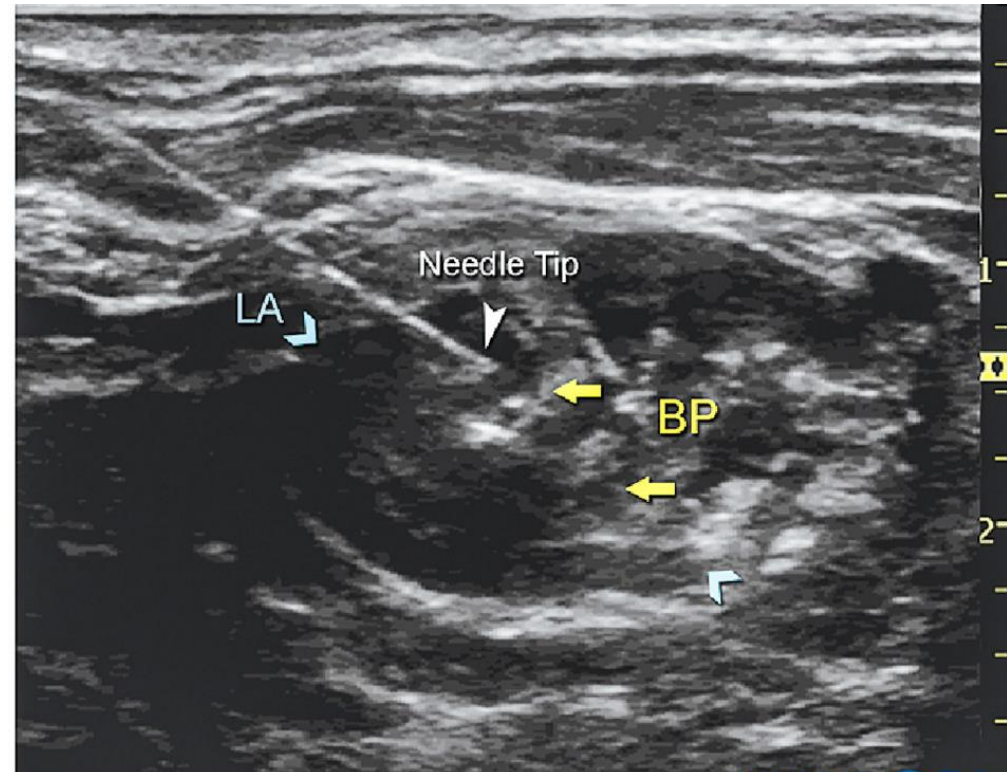
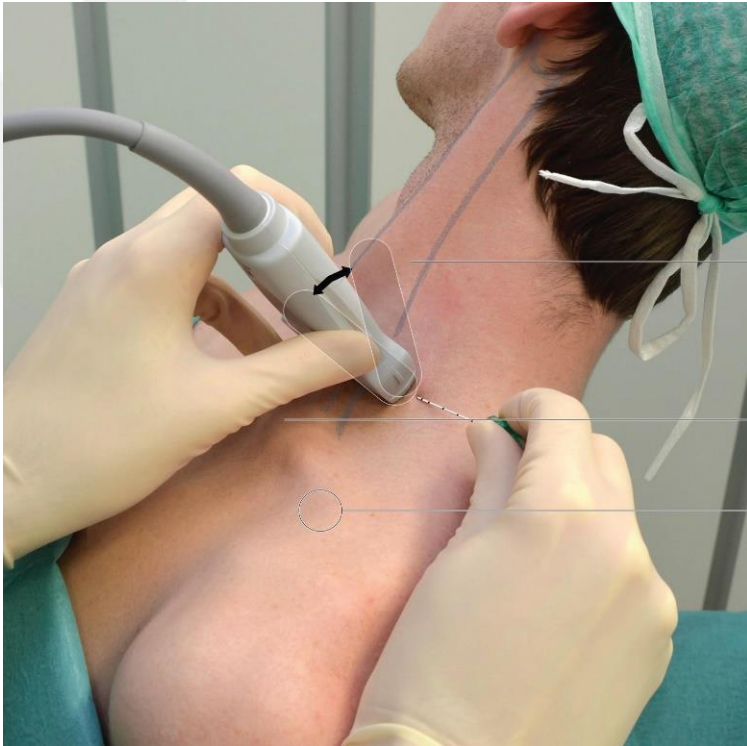
# Regional anesthesia

- Shoulder
  - Interscalene brachial plexus
- Knee
  - Femoral/Saphenous
  - Sciatic
  - Obturator
- Hip
  - Spinal
  - Femoral



# Regional anesthesia

- Ultrasound guidance



# Continuous regional anesthesia

- Three days of low dose infusion
- Able to begin rehab with block in place



# Liposomal bupivacaine

- Sustained release for up to 72 hrs
- Used in surgical field, incisions and regional nerve blocks



# **Contribution of Multimodal Analgesia to Postoperative Pain Outcomes Immediately After Primary Anterior Cruciate Ligament Reconstruction**

Bhargavi Maheshwer,<sup>\*</sup> BS, Derrick M. Knapik,<sup>\*‡</sup> MD, Evan M. Polce,<sup>\*</sup> BS, Nikhil N. Verma,<sup>\*</sup> MD, Robert F. LaPrade,<sup>†</sup> MD, PhD, and Jorge Chahla,<sup>\*</sup> MD, PhD

- The pooled mean VAS score was 2.87 for regional blocks and 4.32 for spinal blocks
- The pooled mean VAS score was 2.72 for FNB and 4.28 for ACB

Research Article

## Prospective Study of Acute Opioid Use After Adolescent Anterior Cruciate Ligament Reconstruction Shows No Effect From Patient- or Surgical-Related Factors

Jennifer J. Beck, MD

Kelly Cline, MD

Sophia Sangiorgio, PhD

Rebecka Serpa, BS

Kendall A. Shifflett, BS

Richard E. Bowen, MD

- 103 adolescent ACL recons
- Prescribed 40 Vicodin      Took 17 (0-40)
- Narcotic use not associated with
  - age, weight, body mass index, sex,
  - block type,
  - autograft type
  - meniscal treatment
- No correlation was found between the level of satisfaction with pain treatment and total number of pills taken



## **Neer Award 2018: the effect of preoperative education on opioid consumption in patients undergoing arthroscopic rotator cuff repair: a prospective, randomized clinical trial**

Usman Ali M. Syed, BS<sup>a</sup>, Alexander W. Aleem, MD<sup>b</sup>, Charles Wowkanech, BS<sup>a</sup>  
Danielle Weekes, MD<sup>a</sup>, Mitchell Freedman, MD<sup>a</sup>, Fotios Tjoumakaris, MD<sup>a</sup>,  
Joseph A. Abboud, MD<sup>a</sup>, Luke S. Austin, MD<sup>a,\*</sup>

- 140 patients
- Study group – 2 minute video + handout
- Patients in the education group were 2.2 times more likely to discontinue narcotic use by the end of follow-up
- Patients with a history of preoperative narcotic use that were in the education group were 6.8 times more likely to discontinue narcotics by the end of follow-up

# Patient Satisfaction With Nonopioid Pain Management Following Arthroscopic Partial Meniscectomy and/or Chondroplasty

Stephen D. Daniels, B.S., Kirsten D. Garvey, M.S., Jamie E. Collins, Ph.D., and Elizabeth G. Matzkin, M.D.

- 163 patients
- 800 mg ibuprofen tid (or acetaminophen)
- 82% - satisfied with post-operative pain control
- Pre-op opioid use risk factor for dissatisfaction



# Opioid free surgery

- Risk of opioid dependence
- Improved surgical and anesthetic techniques
- Patient awareness
- Physician awareness
- Education

**Thank you**



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