

Outpatient Knee Replacements without Narcotics

625 and counting!

How is it Possible???

Thomas Meade MD
Coordinated Health
Allentown, PA



PIZZA & RESTAURANT



**Coordinated
Health**



DISCLAIMER

All information provided was for education only and not meant to serve as medical advice. Any personal use of information provided should be discussed with your physician

“The views expressed in this presentation are those of the author and do not necessarily reflect the view of Coordinated Health. This presentation is not intended as a substitute for personal, professional medical advice or for self-diagnosis and treatment.”

60 min after TKA- No Narcotics



**Coordinated
Health**

Recent Testimonials—Past Month!

Completed on Friday, February 22, 2019.

Dr. Meade,

These phenomenal reviews are just keep coming!! Here is a brand new one from Crystal Zeller who is already considering her other knee replaced since the first one went so well. We love hearing from happy patients and also love sharing their feedback with you!

Have a great day!

Zsuzsa



Crystal Zeller recommends SwiftPath.

1 hr · 🌐

...

Thomas Meade did a great job, back to riding horses. I had a great recovery, in two weeks I was back to most of my daily chores of house work and caring for horses. Will have to consider having my left knee done, tore my acl and they would not repair it because of my age. now it is starting to go. maybe fall.



Sharon Kanick Schappert recommends SwiftPath.

February 16 at 2:46 PM · 🌐

time post- surgery to walk and get used to the new knee without pain. Minimal opioids. I used them for 24 hours.

3 months out I traveled to Paris. I walked miles every day and even climbed the 100+ steps up to Montmartre! I had no knee pain at any time!! 😊



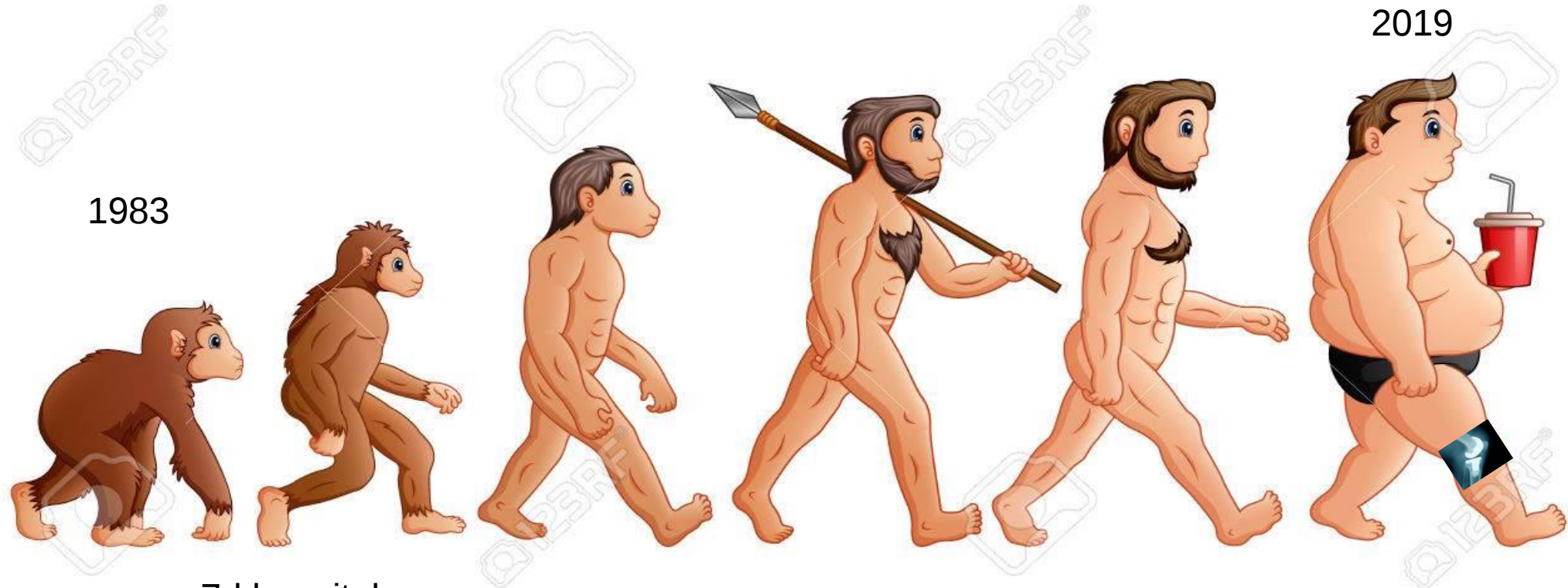
**Coordinated
Health**

Montmartre



**Coordin
Health**

Evolution Of Total Knee Replacement



1983

2019

7d hospital
Rehab
Narcotics
No supplements
CPM, Drains
Long incisions
Bone Loss
Cathether
PAIN!!!



No Hospital
No Rehab
No Narcotics
No Catheter
Smaller Incision
Min Bone Loss
Less Pain
Lots supplements



**Coordinated
Health**

OPIOID CRISIS

National Epidemic of opioid overdose deaths and addictions



JUST THE FACTS

Drug overdose is now the the **leading cause of accidental death** in the United States, surpassing auto accidents

- **Opioids** are the **most commonly prescribed class** of medications in the US
- Physician Rx: Major source of diverted opioids (5P's= Rx,\$,Pol, Pt)
- Over-prescription for **acute pain** is the main source of drug diversion
- US is **5% of the world's population**, but consumes **80%** of its opioids
- Penna Law 2017: Limits opioid Rx to 7d max-No Refils

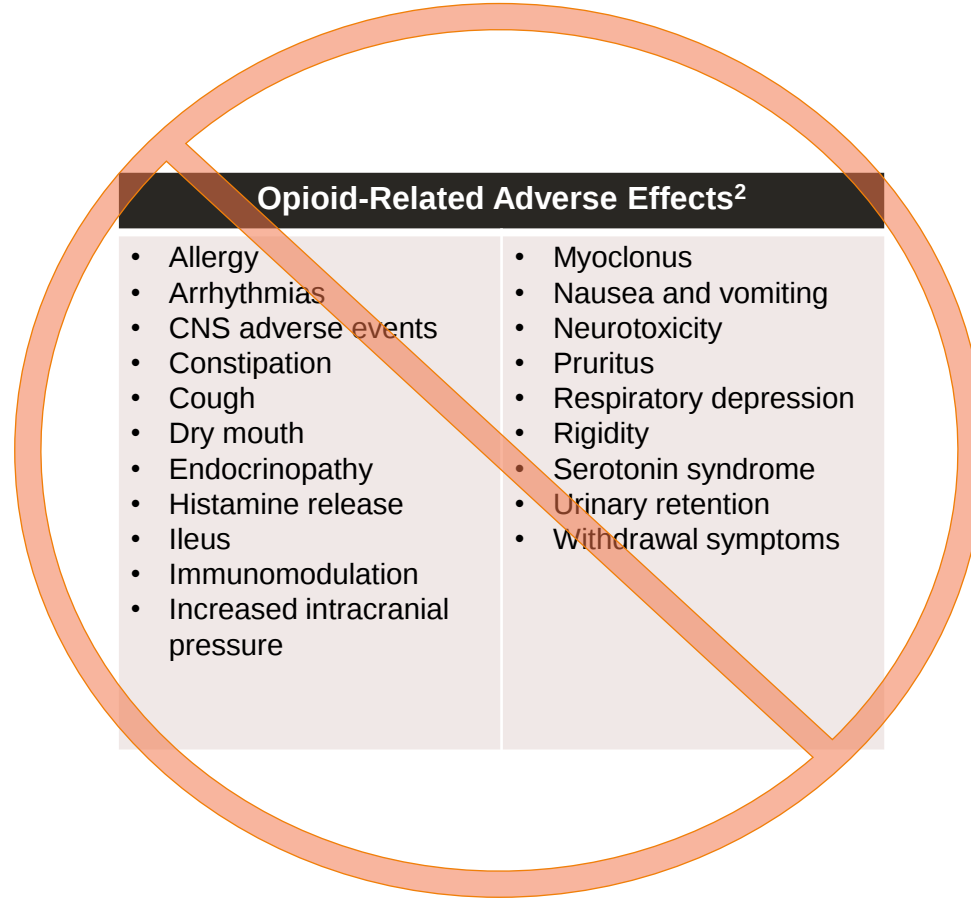


**Coordinated
Health**

Some History-How we got here

OPIOIDS-HISTORIC GOLD STANDARD

- All other Rx measured
- 60% ALL post-op complications



Opioid-Related Adverse Effects ²	
• Allergy • Arrhythmias • CNS adverse events • Constipation • Cough • Dry mouth • Endocrinopathy • Histamine release • Ileus • Immunomodulation • Increased intracranial pressure	• Myoclonus • Nausea and vomiting • Neurotoxicity • Pruritus • Respiratory depression • Rigidity • Serotonin syndrome • Urinary retention • Withdrawal symptoms

OPIOID-FREE SURGERY

REPLACING THE OPIOID

ALTERNATIVE SURGICAL GAME PLAN?



Driving forces- Opioid Sparing Protocols

- Out-Pt Arthroplasty
- Hospital Errors
- Rx Deaths
- CMS Approval OP-TKA
- Cost



BETTER CARE!!

Inpatient



Cant go



Outpatient

Without

Pathways
Protocols
Pain Control
Pt Education
Care 'Partners'
Outcomes
Reliable Communication
Selection tool
TEAM!!



**Coordinated
Health**

KEY to Success



Right Patient



Right Surgical Team
Right Facility

Key to Success

High Volume Efficient Surgical Team

- MIS
- Limit Tourniquet Time
- Quad 'Trauma'
- Patellar Subluxing
- 'Appropriate' Retraction
- Efficient Surgical Time
- TXA
- Electrocautery/ Aquamantys/ Thrombin-fibrinogen



**Tissue Sparing Techniques
Blood Loss Control**

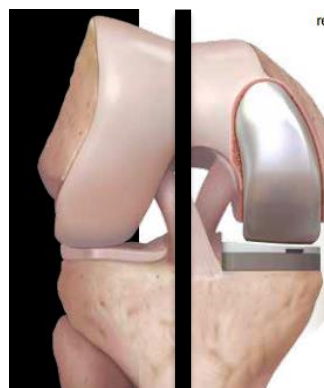


**Coordinated
Health**

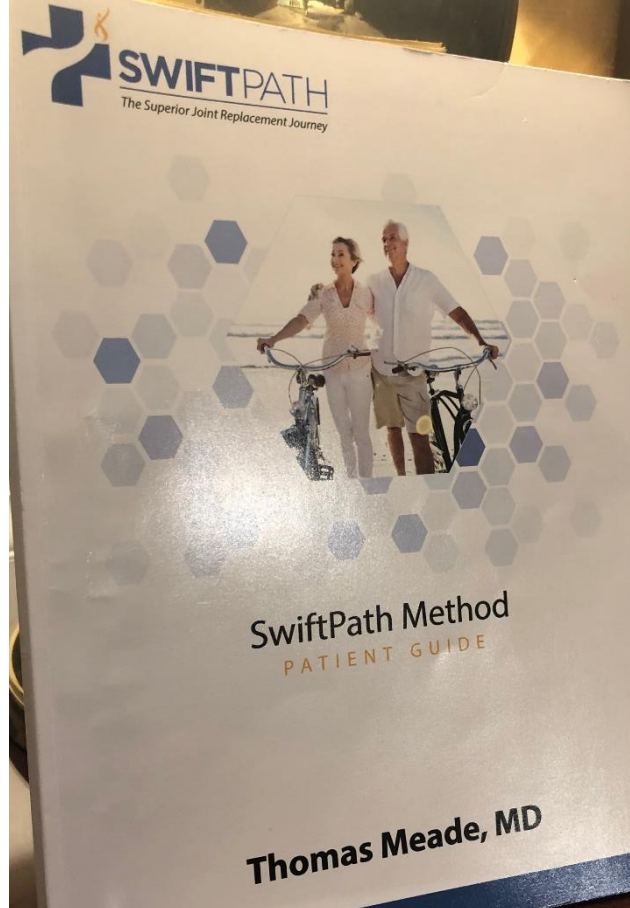
Modern Knee 'Replacement'='Resurfacing'



**Coordinated
Health**



Key to Success Pt Education, Education, Education



60 Page Bible!!

Joint Camp



**Coordinated
Health**

Key to Success- Insurance

- Medicare/Supplements
- BSBS
- Aetna
- United
- Geisinger
- Highmark
- UPMC
- Humana
- Independence BC

Precert **\$\$\$\$**



**Coordinated
Health**

Blue Cross Blue Shield Association 2017

- Inpatient Total Knee
- \$30250

- Inpatient Total Hip
- \$30700

- Out Patient Total Knee
- \$19000

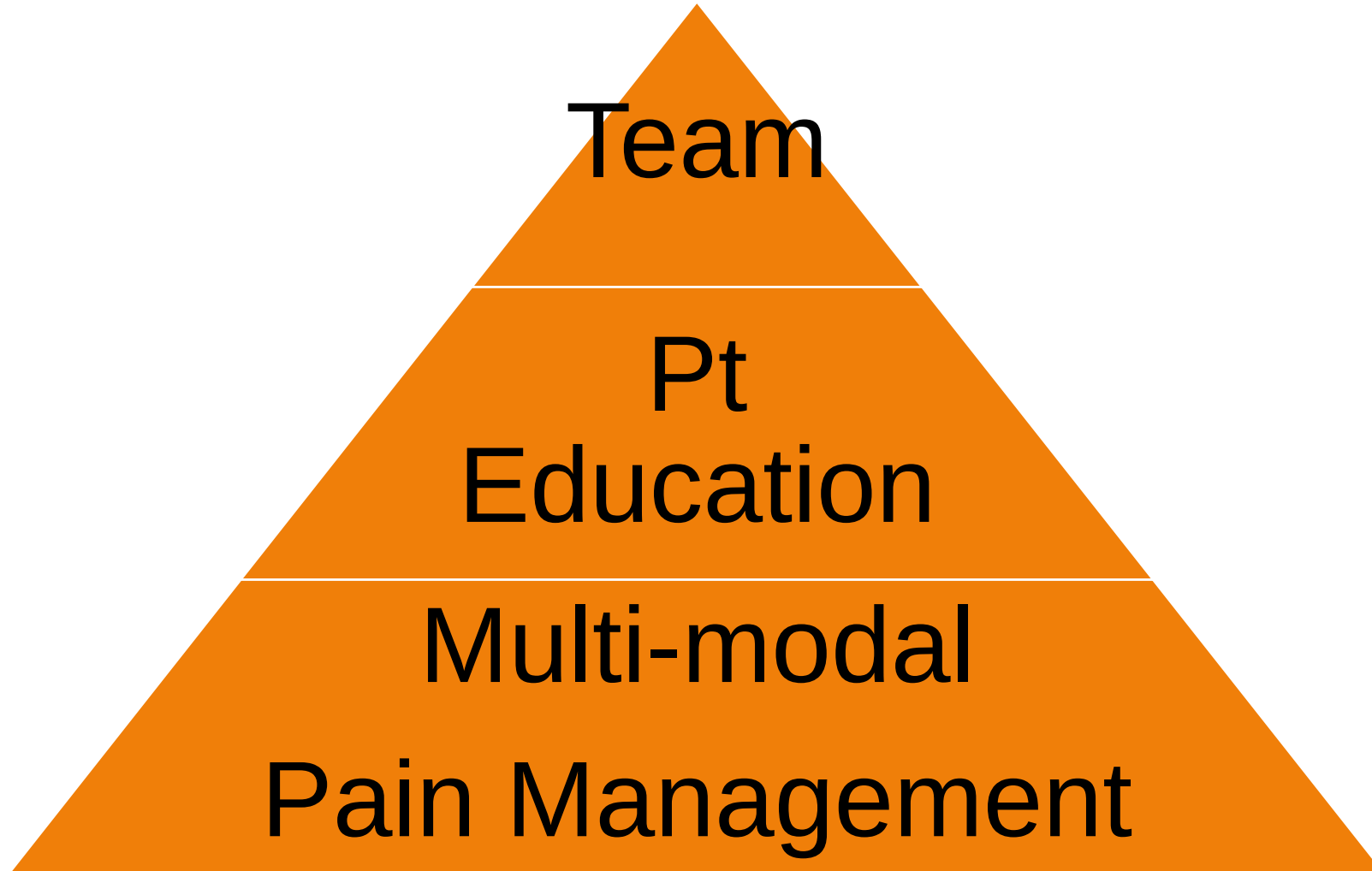
- Outpatient Total Hip
- \$22000

30-40% Cost Savings
No difference Complications



**Coordinated
Health**

Key to Success



**Coordinated
Health**

Believe in Pain Management

• 30d Pre-Op • Supplements – Omega-3 – L Arginine – Other • ASA 81 mg	• 24-48 hrs • NSAIDS • Acetaminophen • Supplements • ASA	• Pre-op • NSAIDS • Steroids • Acetaminophen • Spinal • Gabapentinoids	• Intra-Op • MIS Techniques • Experial • TXA
---	---	---	---

Opioids- ONLY Pain Modality

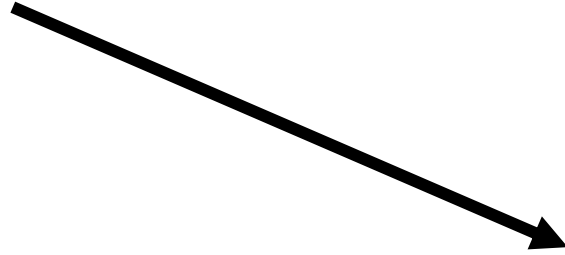
- **Post Op**
- Supplements
- NSAIDS
- Acetaminophen

Opioids-Breakthrough ONLY

Pain

Since All pain is ultimately transmitted through inflammatory mediators.....

- Acute
- Chronic
- Neurogenic
- Referred
- Post-op
- Joint
- Back
- Overuse
- Arthritic/Inflammatory



Chemical Inflammatory
Mediators

(Eicosanoids)

Prostaglandins, thromboxanes,
lipoxins, leukotrienes



Natural Anti-Inflammatories/anti-oxidants

- **Omega-3 (Fish Oil)-1000-3000mg**
- **Turmeric/Curcumin(100-500)**
- **ASA 81mg**
- Bromelain (100mg bid)
- Vit D3 (5000mg)
- Vit E (400-800mg)
- Vit C (2000mg)
- Mg+ (400-800mg)
- CoQ10 (100-200mg)
- Zn(50mg)
- Selenium (200mcg)
- Resveratrol (250mg)

Green/Black Tea
Carotenoids
Black Pepper-peppercorns
Cinnamon
Clove
DHEA (25-100mg)
Tart Cherry
Avocado
Pomegranate
Ginger
Quercetin (250mg)
Hemp CBD

Wound Healing/Infection

- 2 All-Stars
 - L-Arginine
 - Omega-3 (Fish oil)



Mary Ann Liebert, Inc. publishers

ADVANCES IN WOUND CARE

Journals

Search

Alerts

[Adv Wound Care \(New Rochelle\)](#). 2014 Nov 1; 3(11): 682-690.

PMCID: PM

doi: [10.1089/wound.2013.0469](#)

Role of Arginine and Omega-3 Fatty Acids in Wound Healing and Infection



Coord
Health

Arginine and infection

- NO plays a major role in antimicrobial activity and improving blood flow to the healing wound.
- Mostly animal studies
- Better at prevention vs Rx
- In brief, **arginine can be used safely and effectively to prevent infections in patients**

Omega-3 & Wound Healing

- Omega-3 fatty acids in fish oil may have a beneficial effect on **early wound epithelialization**
- May inhibit later collagen deposition, possibly **minimizing scar formation**.

Studies with both arginine and omega-3 fatty acids



- Studies: arginine + omega-3 fatty acids consistently reduced postoperative infections and length of hospital stay
- A **combination** of omega-3 fatty acids and arginine appears to be much more effective than either given alone.
- **Better-** Started before surgery

Why your Dr is more likely to Rx Drugs vs Supplements?

- Today: Health care system is based on a pharmaceutical model
 - 70% USA one Rx
 - 50%- 2 Rx
 - Opioids, Anti-depressants, antibiotics



The FDA's Definition of Drug vs. Supplement

FDA task force long ago established this policy

*"... to ensure that the presence of dietary supplements on the market does **not act as a disincentive to drug development.**"*

Process of getting a drug to market costs an average \$359 million and takes nearly 10 yrs

A good portion of the money going directly to the FDA through user fees.

These fees have become a major funding source for the FDA

But- Not a perfect world!

- Bad farming practices
- Decreased soil quality
- Decreased nutritional value fruit/ vegetables
- Nutritionally depleted livestock
- Toxic fish
- GMO wheat / food
- B-12 & Folic Acid- better not from food



More obese adults living in America today
than in any other country in the world.

BEWARE:SOON coming to USA

No surgery for smokers or the obese:
Policy in UK stirs debate



**Coordinated
Health**

It's Here!!!!

'Multimodal Pain Management'



REVIEW ARTICLE

Avg age ortho surgeon = 56.5

Anesthesia & Analgesia 1993

The Value of "Multimodal" or "Balanced Analgesia" in Postoperative Pain Treatment

Henrik Kehlet, MD, PhD, and Jørgen B. Dahl, MD

Department of Surgical Gastroenterology and Anesthesiology, Hvidovre University Hospital, Hvidovre, Denmark

95% previous literature----- Unimodal= opioids

**2 or more agents w different MOA, synergistic, lower SE+ dosages
(NSAIDS+ local+ opioids)**

1st to 'pre-emptive analgesia = pre-op decreases post-op intensity/duration pain

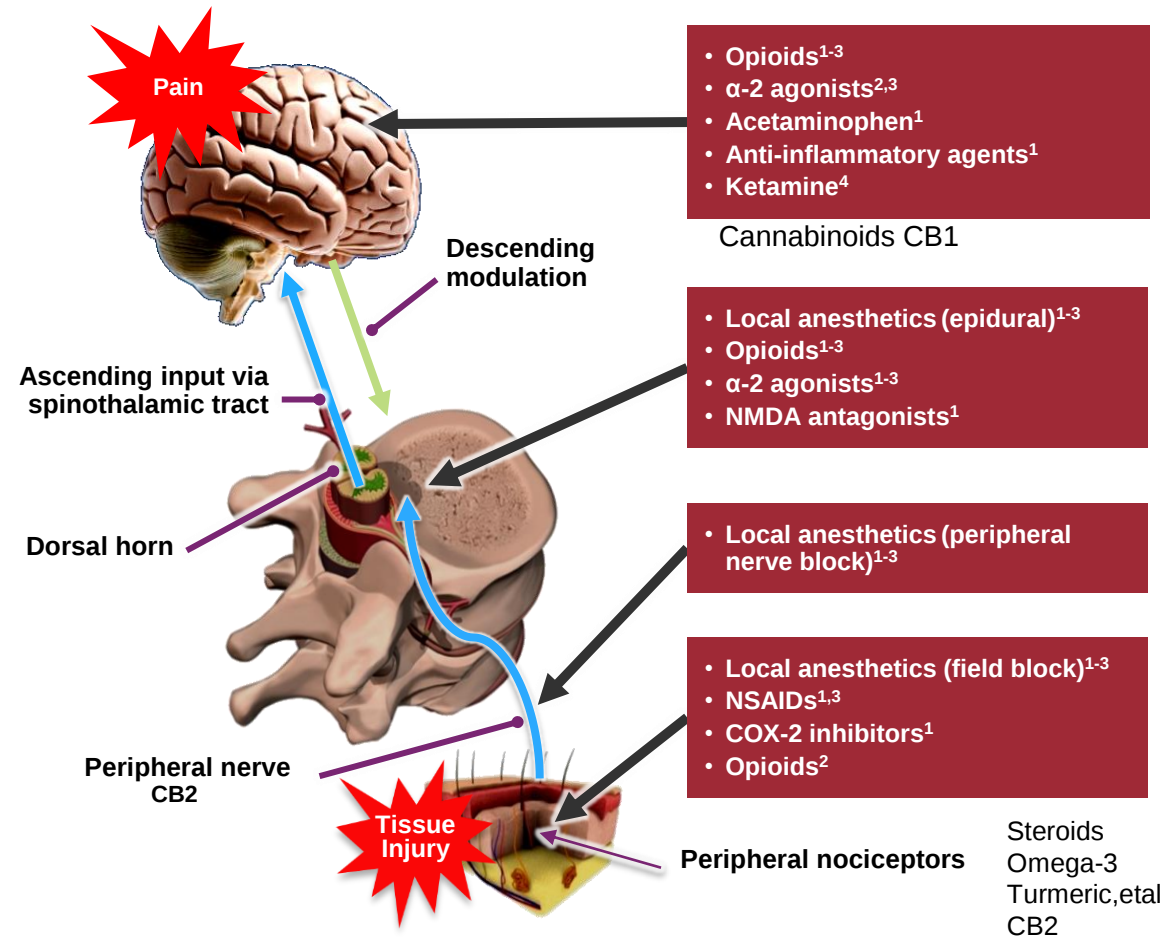


**Coordinated
Health**

A Multimodal Approach Uses a Variety of Therapeutics That Work at Different Sites



- Simultaneous use of a combination of ≥ 2 analgesics that act at different sites within the central and peripheral nervous systems in an effort to^{1,2}:
 - Reduce pain
 - Minimize opioid use and ORAEs



COX = cyclooxygenase; NMDA = N-methyl-D-aspartate;
NSAID = nonsteroidal anti-inflammatory drug; ORAE = opioid-related adverse event.

1. Gandhi K, Viscusi E. *J NYSORA*. 2009;13:1-10.
2. Kehlet H, Dahl JB. *Anesth Analg*. 1993;77(5):1048-1056.
3. Gottschalk A, Smith DS. *Am Fam Physician*. 2001;63(10):1979-1984.
4. Nishida K, et al. *Neuropharmacology*. 2012;33(1):70-77.

Figure adapted with permission from: Gottschalk A, Smith DS. *Am Fam Physician*. 2001;63(10):1979-1984.



**Coordinated
Health**

Opioid Equivalency

- Acetaminophen (3000-4000mg)

+

=

6-8 mg IV MS

- NSAIDS Ibuprophen (2400mg)



Modern Pain Management More than just Pharmaceuticals!

1. Patient Engagement
2. **Opioid Sparing** Pain Management
3. Identical for Outpatients & Inpatients
4. **Pre-OP►Intra-OP►Post-OP► DC**
5. Tissue Sparing Techniques
6. Blood Loss Control
7. 'Controlled' Post-Op Activities/exercise



**Coordinated
Health**

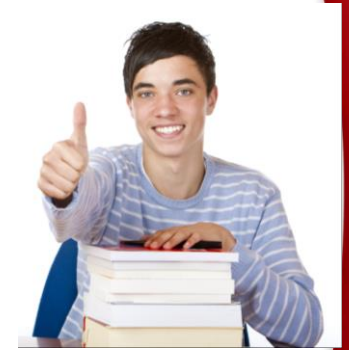
Historic Post Op Pain Protocol

Pre-op 'Pre-emptive Analgesia'

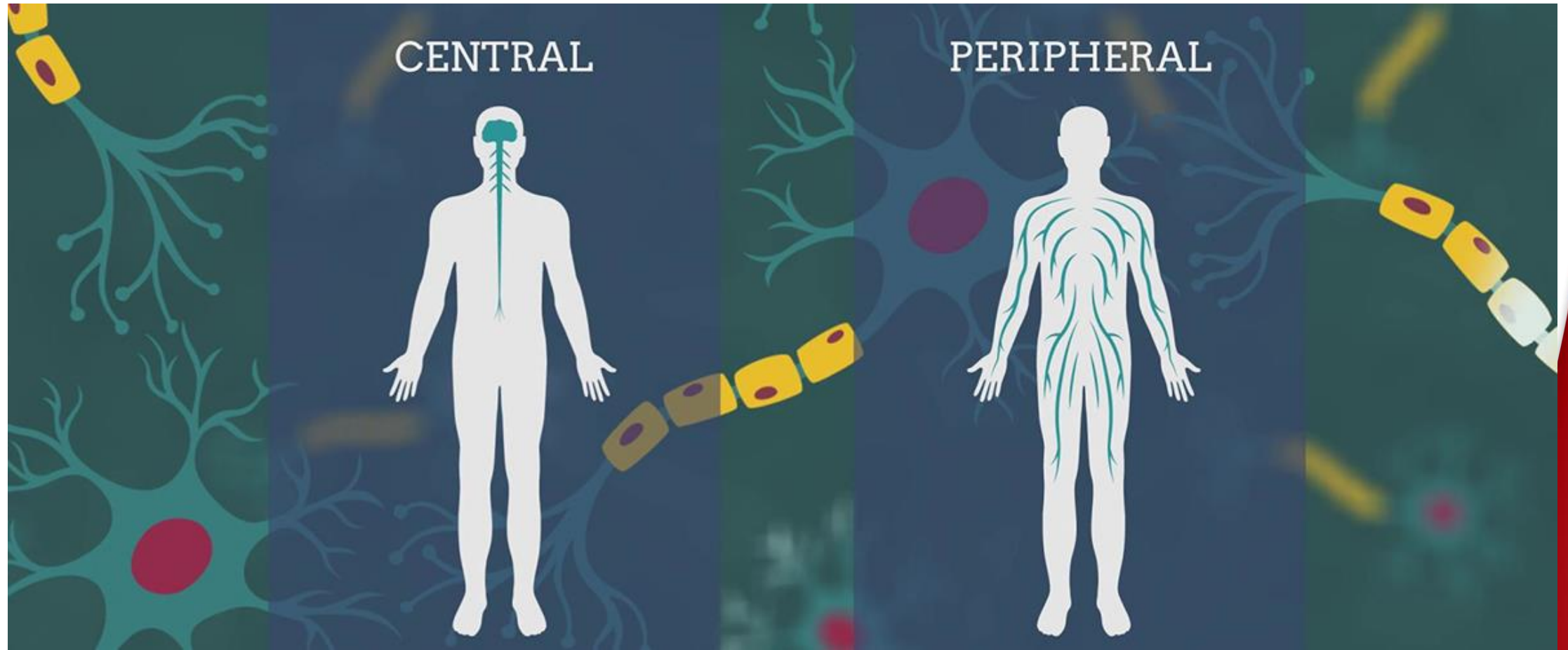
- 30d– Neutriceuticals
- 1d---- NSAIDS, Acetaminophen
- 0d--- Pre-op Steroids, TXA, pregabalin, Cox-2, acetaminophen, Spinal
- Intra-op- Liposomal Bupivacaine, TXA, Bupivacaine, Toradol

Post-op

- Cox-2 (Celecoxib)
- Acetaminophen
- Pregabalin (in-pt only)
- **Oxycodone 5Mg 10-15 (Break-thru pain only) * only Rx pre-1993**



Endocannabinoid System



**Coordinated
Health**



The Endocannabinoid System, Cannabinoids, and Pain

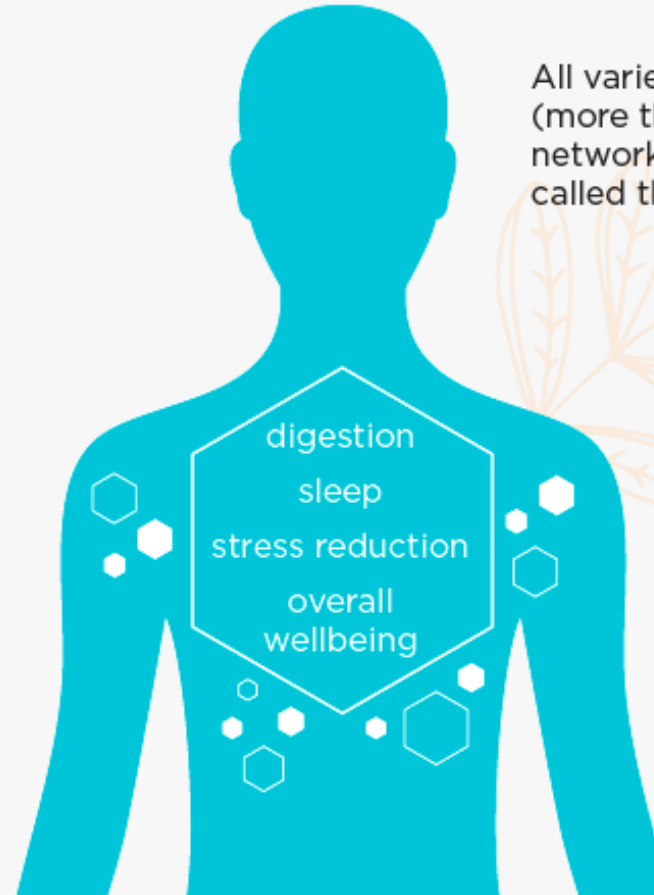
- **Modulate Pain and Inflammation**
- **Anti-Nausea**
- **Tissue healing**
- **No respiratory depression**
- **No fatalities** reported directly related to toxicity
- 600 million y.o. system & thousands yrs. social/medicinal use
- Pain related medical service = \$1Trillion USA
- Stay tuned- 29 states approved
 - Overdose Rx deaths decreased 25%



**Coordinated
Health**

How Does *Full Spectrum Hemp Oil Extract* Benefit the Body?

Endocannabinoid System



All varieties of Cannabis sativa L. (more than 60+) interact with a network of neurons in our body called the endocannabinoid system.

The endocannabinoid system is highly receptive to full spectrum hemp oil extract (sometimes referred to as cannabidiol oil or hemp CBD oil).

When CBD interacts with the endocannabinoid system, it stimulates many functions in the body that help support digestive health, sleep, stress reduction & overall wellbeing.

America's CBD oil usage boom

Brazen claims, fake products and regulatory scrutiny



While CBD is generally believed to be safe, scant research has been conducted on its medical and health benefits because cannabis has long been prohibited at the federal level. The only clinically proven remedy is a treatment for two rare forms of childhood epilepsy. All other claims are anecdotal.

“Nobody’s been allowed to do the research for all these years, so it’s a big open space where companies can say things without the data to back it up,” said Kent Hutchison, co-director of the University of Colorado’s CU Change Lab.



**Coordinated
Health**

Big Pharma Homerun!



- Many drugs are derived from plant compounds
- Nature cannot be patented and sold so Big Pharma has no interest in natural cures.
- Research natural compounds, copy or slightly modify them in a lab, and patent them.
- Then market their pill as a wonder drug while suppress the original plant as being worthless- so you won't go to the natural source!
- Epidiolex- (CBD-cannabidiol)
- A drug derived from marijuana has become the first to win federal approval, and experts predict an avalanche effect

What you didn't Know about Medical



- **Introduced** to the United States as a medicinal product in the mid-**1800s** and was widely prescribed by physicians as a therapeutic until **1937**
- The (AMA) testified before Congress that nearly 100 years of medical experience in the United States had demonstrated **an irreplaceable therapeutic role for cannabis**
- **Addiction** is unknown in medical users.
- **No human fatalities** ever reported!!
- **Chronic pain is the most frequent condition for its use**



Basic Science Facts- Endocannabinoid System

- Humans and animals synthesize endocannabinoids- same receptors as exogenous plant bases CBD/THC
- Crucial for bioregulation and unique/ubiquitous cell signaling: PAIN-Acute, Chronic Inflammatory, Neuropathic
- Anti- inflammatory effects of most spices –mediated thru CB2 receptors
- Derived from FFA in cell membranes-similar to Omega 3/6
- May help normalize sleep, improve appetite PO TJA
- **US Dept HHS-** owns patent on use CNB as Anti-Ox & Neuroprorectants
- Significant 'cross-talk' betwn opioid & EC receptors- dec dose response curve
- CB 1-2 receptors may-decrease cartilage destruction – inhibitting chondrocyte expression of cytokines



Basic Science Facts- Endocannabinoid System

- Ibuprofen, Ketorolac, Acetaminophen, Cox-2 –all have a cannabinoid MOA for analgesia
- EC system is widely distributed in body. Main function is cellular homeostasis.
- **Understanding is emerging, incomplete, complex-exciting!!**

The Health Effects of Cannabis and Cannabinoids

THE CURRENT STATE OF EVIDENCE AND
RECOMMENDATIONS FOR RESEARCH

Jan 2017

National Academy SCIENCE•ENGINEERING•MEDICINE

- **CONCLUSIONS FOR: THERAPEUTIC EFFECTS**

10,000 Studies

- Conclusive evidence that cannabis or cannabinoids are effective: **Treatment for chronic pain in adults**

AND

- In legalized Rx Cannabis states
 - Annual Rx overdose deaths 25%



Q and A

THANK YOU



**Coordinated
Health**