



PAIN MANAGEMENT IN ELITE ATHLETES

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Smelling Salts Used in 1940s | Photo by Francis Reiss/Picture Post/Hulton Archive/Getty Images



Precision Sports Medicine

“The Old Way”



- Surgeon = “captain of the ship”
- Silos of care
 - Surgeon, Med onc, Rad onc
- Outcome measure = survival
- “My personal series” and individual clinical trials (sequence of animal, phase 1, 2 and 3)
- Head team doc = “runs the show”
- Coaching, training, medical (MD, AT, PT)
- Injury counts and RTP data
- “my personal series” and internet sourced pro athlete data

“The New Way”

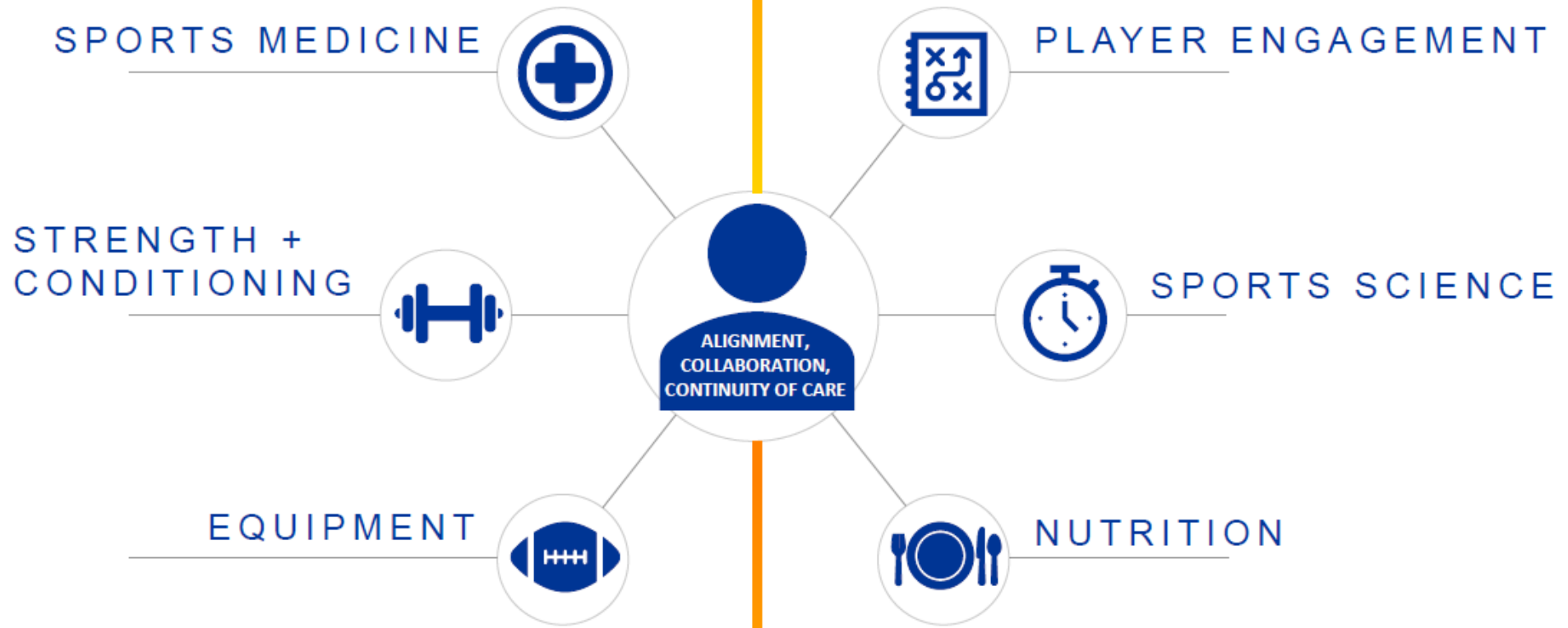


- Care teams
 - Horizontal and not vertical
 - Importance of patient voice
 - Palliative care
- Molecular subtypes of tumors
 - Markers of treatment and prognosis
- Image guidance and minimally invasive techniques
- QOL and patient satisfaction
- Sports medicine task forces
 - MD, AT, PT, EQM, S&C, performance, sports scientist, data scientist, nutrition, behavioral health, athlete
- Subclassification of injuries
 - Advanced imaging, aggregated data, models of causation
- Screening, prevention, individualized training, load management
- Injury burden and career longevity

DIRECTOR:

PLAYER HEALTH & PERFORMANCE

ALL MEDICAL DECISIONS AT DISCRETION OF HEAD TEAM PHYSICIAN*



ALL SUBSPECIALTIES EFFECT PLAYER HEALTH + SAFETY

- Collaboration between NFL/NFLPA to improve clinical care for our players through education and research.
- Comprised of NFL and NFLPA representatives, medical experts from a variety of pain-related disciplines, team medical staff, and former players.

NFL – NFLPA Pain Management Program



- Yearly education of players, medical staff, and all support staff
- PDMP – all prescriptions
 - Reviewed by committee and outliers are contacted
- Pain consultant at each club
 - Reviews PDMP
 - Participates in education
 - Management of difficult (or routine) cases



EDUCATION



PAIN MANAGEMENT

- **Joint Pain Management Committee between NFL and NFLPA**
- Develops Best Practices for pain management and researches pain management alternatives

Implemented Prescription Drug Monitoring Program (PDMP)

All prescriptions entered into EMR

Players must report all meds received from non-team physicians

Toradol

Toradol should not be used – and should not be requested by players – to reduce anticipated pain before, during or after participation in NFL games or practices.



TREATMENT OF PAIN

- **Most common types of medication**

- Non-steroidal anti-inflammatory drugs (such as Advil, Naproxen or Tylenol).
- Prescription narcotics (such as Vicodin, Codeine).

- **Potential risks**

- Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) can cause heart attack, stroke, liver and kidney side effects, gastrointestinal upset and risk of peptic ulcers and or bleeding.
- Narcotic pain medications may result in addiction, especially if not monitored and if not used as directed by a licensed prescribing professional (physician, dentist, etc.).

NON-MEDICINAL PAIN TREATMENT



Physical
Therapy

Chiropractic
Care

Heat, Ice,
Electrical
Stimulation

Acupuncture

Dry
Needling

Hypnosis

Biofeedback

AVOID THE RISKS

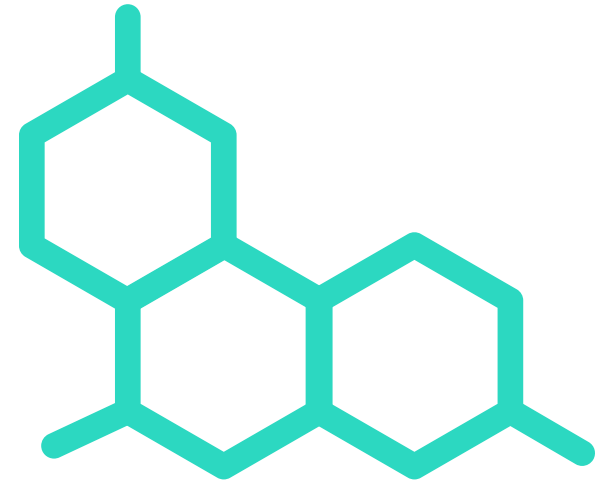


- **Take medication as directed.**
 - Inform all your physicians of all the medications you are prescribed.
- **DO NOT** store unused medications.
- **DO NOT** combine medications with alcohol or other medications unless you have consulted with your team physician.
- **DO NOT** share your medication or take medication that is prescribed to others.
- Maintain control of your medications and discard any unused medications.
- Failure to follow these guidelines may result in your violation of and enrollment in the NFL Policy and Program on Substances of Abuse.

CANNABIDIOL (CBD)



- Incredibly popular, but lots we don't know.
- We are not certain of how it works
- Not regulated by FDA, often mislabeled.
 - Very similar to over the counter supplements



CBD: THE SCIENTIFIC EVIDENCE



- Promising, but most evidence is in animal (non-human) studies
- Some evidence for benefit in specific conditions:
 - Neuropathic pain (2 studies), anti-anxiety, anti-psychotic.
- No evidence for sleep enhancement (one of many myths).



- Labeling and possible positive drug screen for THC.
- Drug-drug interactions (including benzodiazepines, anti-epileptics, morphine and other narcotics).
- **BOTTOM LINE** – better to use evidence-based treatments as first line therapies.
- CBD will be a focus of the Joint Pain Management Committee’s research agenda. CBD is included in \$1.5M research funding for pain management alternatives.





- Elite performance – treatment effects?
 - “Elite athletes are not bigger, faster, and more skilled adults”
- Established patterns of care (HS, college)
- “Opioids or cannabis”
- Multiple providers – coordinated care
- Prophylactic treatment of pain in collision sport athletes
- Load management – what it is? How do we measure?

- Acute: Judgment, driving.
- Chronic: Potential for addiction, worsens psychiatric conditions, harms developing brain (≤ 25 years old).
- Affects athletic performance next day in fashion similar to alcohol.



IV Hydration- NOT ALWAYS BETTER THAN FLUIDS BY MOUTH

- Research shows IV fluids (pre-hydration or rehydration) do NOT work better than oral fluids for conditions such as:
 - Avoiding overheating (thermoregulation)
 - Avoiding excess heart rate (heart rate control)
 - Reducing the rate of perceived exertion (how hard you feel like you are working)
 - Exercise tolerance (how long can exercise be sustained)
- American College of Sports Medicine consensus guidelines state, “IV fluids do not provide an advantage over drinking in replacing fluid and electrolyte deficits”
- Recent evidence does NOT support the use of IV fluids for rehydration for otherwise healthy athletes that can tolerate oral fluids

Sawka, M., Burke, L., Eichner, R., Maughan, R., Montain, S. and Stachenfeld, N., 2007. American College of Sports Medicine exercise and fluid replacement position stand. *Med. Sci. Sport. Exerc*, 39, pp.377-390.

Givan et al. *Sports Health: A Multidisciplinary Approach* 2021, 4:333.

IV Hydration- WHEN IS IT USEFUL?



- IV hydration is a medical decision that should be made by each individual team physician in consultation with a player based on their clinical data and an individual assessment
- The Australian Institute for Sport recently outlined clinical scenarios in which IV use for athletes may be useful:
 - Dehydration caused by an acute illness (vomiting, diarrhea)
 - Dehydration during severe heat illness
 - Sickle cell collapse or crisis
- Other situations where IV fluids in the setting of dehydration may be preferred:
 - Weight loss > 3% (due to heavy sweating)
 - Urine specific gravity > 1.025
 - Symptomatic low blood pressure (dizziness / low blood pressure from dehydration)

IV Hydration- RISKS



- 40% of NFL team medical staffs have reported complications from IV hydration ranging from superficial blood clots, skin infections, and even fluid in the lungs (pulmonary edema)
- There are recent published reports where 4 professional football players suffered the potentially life threatening complication of venous air embolism (VAE) related to pressure bag IV fluid infusion
- The risk of air emboli is very low if the IV is done by trained IV specialists (approximately 1 per 1,000)
- The 2021 “Product Warning” memo issued by Dr. John Lombardo, the Independent Administrator of the NFL-NFLPA Performance-Enhancing Substances Policy stated:
 - “IV fluid vitamin cocktails may contain substances that are prohibited by the PES Policy and players have reported failed tests resulting from IV vitamin infusions. Therefore no one can be certain of the purity of the ingredients in IV cocktails.”
 - **KNOW WHAT GOES INTO YOUR BODY!**

Fitzsimmons S, Tucker A, Martins D. Seventy-five Percent of National Football League Teams use Pregame Hyperhydration with Intravenous Fluid. *Clinical Journal of Sport Medicine*. 2011;21:192–19

Fibel, K.H., Barnes, R.P. and Kinderknecht, J.J., 2015. Pressurized intravenous fluid administration in the professional football player: a unique setting for venous air embolism. *Clinical journal of sport medicine*, 25(4), pp.e67-e69.

Cook et al. Infusion-Related Air Embolism. *Journal of Infusion Nursing* 36(1):p 26-36, January/February 2013.





“For the pain, these have proven to be the most effective swear words.”

