Care and Treatment of Athletes in MMA and Boxing

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Overview

- Boxing vs. MMA
- Fighter License Process
- Typical Event Coverage
- Medical Suspensions
- Common Injuries
- Hot Topics
Disclosure

- Association of Ringside Physicians
  - Member of the board of directors

- International non-profit organization comprised of experienced ringside physicians and associates, all devoted to the common goal of ensuring and promoting health and safety in combative sports
Before we start…

- This is the hurt game
- The object of these sports is different than all others
- Guidelines that we generally use in sports medicine may not apply
- Few quality studies out there
Poll

- How many of you have covered a boxing/MMA event?
- Which sport do you think is safer, boxing or MMA?
Boxing vs. MMA

- Similar sports in objective but are very different
- Trying to compare the two is like comparing hockey to lacrosse
Boxing History

- Some form of boxing has been around since 300 BC
- Modern boxing has been around since the 1860s
  - Rounds
  - Gloves
  - 10 count
MMA History

- UFC 1 was held in 1993
- The purpose of it was to determine which martial art form is the most dominant
- “There are no rules!”
MMA History

- Late 1990s UFC came under fire
- Sen. John McCain
  - “Human cockfighting”
- Sponsors would not touch it
- States started to ban it
MMA History

- Unified rules created in 2000
- UFC purchased for $2 million in 2001
- The Ultimate Fighter
  - Griffin vs. Bonnar August 2005
Format

- Boxing
  - 3-12, 3 minute rounds
  - 1 minute rest in between
  - Gloves are 8-10 oz
    - Welterweight (147 lbs)
Format

- MMA
  - 3-5, 5 minute rounds
  - 1 minute rest in between
  - Gloves are 4-6oz
    - Hand size
    - Eye injuries
Ways to win

- Boxing
  - KO
  - TKO
  - Decision
Ways to win

- MMA
- KO
- TKO
- Submission
- Decision
Knock downs

- Boxing
  - You have 10 seconds to get up. If you do then the fight continues.
  - Usually if knocked down 3 times in a round the fight is stopped
Knock downs

- MMA
  - When a fighter is knocked down from a strike his opponent can continue with his attack. The knocked down fighter needs to be intelligently defending his/her self for the bout to continue.
Knock downs

MMA

“Intelligently defending” means that the fighter is not “turtling up”. The downed fighter needs to be deflecting strikes or controlling his/her opponents arms.
Knock downs

- MMA
  - If the downed fighter appears unconscious the referee will stop the fight immediately.
Striking

- Boxing
  - Only punching is allowed
Striking

- MMA
  - Punching
  - Kicking
  - Elbows
  - Knees
    - Cuts
  - Both standing and on the ground
Grappling

- Boxing
  - “Tie Up”
  - Usually happens when fighters are fatigued or to try to defend themselves
  - Referee usually breaks it up after a couple of seconds
Grappling

- MMA
  - Happens standing “clinch”
  - While in the “clinch” fighters can strike, and/or attempt to take their opponent down.
Grappling

- MMA
  - Happens on the ground
  - While on the ground, fighters can strike, attempt a submission hold, and/or try improve their position
  - If no action is happening – the referee will bring the fighters back to a standing position
Other MMA Rules

- Can NOT kick or knee a “downed” opponent in the head
- Downed is defined as having at least one knee or at least one hand on the ground
Poll

- Which sport do you think is safer, boxing or MMA?
- You are both right!!!
- MMA is certainly more dangerous from an orthopaedic perspective and lacerations.
- Boxing is probably more dangerous from a brain injury perspective, acutely and chronically.
Otten et al. 2015

- Looked at 152 UFC bouts in Nevada in 2007-2009
- 60.3% had no complaints or injuries post bout
- 19% of fighters had significant facial laceration or soft tissue injury
- 6% of fighters had an orthopedic injury
- 3% of fighters had a nasal fracture
- 12% of fighters were sent for head CT
  - No intracranial pathology
Baird et al. 2010

- Looked at mortalities in professional boxing from 1950-2007
- 339 deaths
  - 219 between 1950-1982
  - 120 between 1983-2007
- Vast majority of deaths due to brain injury
Baird et al. 2010

- Difference between “15 rd” and “12 rd” eras
  - Shorter careers and fewer fights
  - Stricter regulations and better medicine
- 80% of fatalities involved KO or TKO
  - KO 62%
  - TKO 18%
  - 70% KO fatalities happen in rds 6-10
MMA Fatalities

- Since 2001 (Unified Rules)
  - 4 total ring deaths in sanctioned events
  - 3 brain injury related
  - 1 suspected cardiac related
Hutchison et al. 2014

- Looked at 844 bouts from the UFC from 2006-2012
  - KO rate 12.7%
  - TKO (due to strikes) rate 19.1%
  - Submission rate 20.9%
  - Decision rate 44.5%

- Other literature states that KO rates in professional boxing is less than 5%
Hutchison et al. 2014

- For KOs
  - Average time between KO-Strike and stoppage was 3.5 seconds
  - Loser received an average of 2.6 additional strikes

- For TKOs
  - 30-second interval immediately preceding the stoppage, loser received an average of 18.5 strikes, 92.3% of these being head strikes
Boxing vs. MMA

- Boxing
  - 120 deaths over 25 years
  - 4.8 deaths per year

- MMA
  - 4 deaths over 14 years
  - 0.28 deaths per year
Data Summary

- Death rates in boxing are higher
- Death rates in boxing usually associated with KO or TKO
- KO or TKO rates are higher in MMA
- What is the difference?
- Boxing KO and TKO are usually associated with more cumulative head trauma
Future Research

- Since MMA is such a young sport - no long term effect studies available.
- The Cleveland Clinic’s Lou Ruvo Center for Brain Health in Las Vegas
  - Over 400 fighters registered
Federal ID Card

- All fighters must apply for a Federal ID Card
  - General Information
  - Manager/Promoter/Trainer Information
  - For Data Base
State License

- Every fighter has to apply for a license in every state he/she is planning to fight in.
- Not all state athletic commissions function equally.
Universal Requirements

- Annual Physical Exam
Universal Requirements

- Annual Dilated Eye Exam
ARP Position Statement

- Ocular Guidelines
  - Fighters should have uncorrected visual acuity of 20/200 or better in each eye
  - Fighters should have corrected visual acuity of 20/60 in each eye
  - Absence of major ocular disease
    - Glaucoma, macular disease, retinal disease
  - Fighters with only one functioning eye should not be allowed to fight
ARP Position Statement

Ocular Surgery Guidelines
- Intraocular surgery
  - Cataract, Retinal Detachment
  - Should be dealt with on a case by case basis
- Refractive Surgery
  - Radial Keratotomy should not be allowed to compete
  - LASIK and PRK allowed to compete
Universal Requirements

- Blood Tests
  - Every 6 months
  - Hep B, Hep C
  - HIV
ARP Position Statement

Blood- Borne Infectious Disease

- Recommend testing every 6 months
  - HIV ½ serum Ab (with EIA, with confirmation)
  - HBsAg
  - HCAb
- Disqualify if
  - + HIV
  - + HBsAg
ARP Position Statement

Blood-Borne Infectious Disease

- Fighter with + HCAb should be disqualified UNLESS the following conditions are met…
  - Documented proof of completed treatment
  - 3 consecutive viral load blood test within a 6 month period including a test 2 weeks prior to the bout
  - Clearance from an Infectious Disease physician
State Specific Requirements

- **Brain Imaging**
  - CT or MRI
  - Some states require baseline no matter what
    - Usually every three years
  - Other states require only if
    - Older than 35
    - Extensive losing record
    - Consecutive losses in a row
State Specific Requirements

Cardiac Testing

- Some states require baseline EKG no matter what
- Other states require EKG only if:
  - Older than 39
- Some states require other:
  - Perfusion if older than 39
State Specific Requirements

- Blood Tests
  - Some states require
    - CBC
    - CMP
    - PT/INR
ARP Position Statement

- Medical Clearance of the over 40 fighter
  - Recommendations in addition to annual physical, blood-borne testing and annual eye exam
    - Initial MRA of the brain
    - Annual MRI of the brain
    - Annual EKG and perfusion testing
    - Annual formal neurocognitive testing
    - Annual CBC & CMP
ARP Position Statement

- Medical Clearance of the over 40 fighter
  - If results suggest any deterioration in health status that fighter should not be granted a license.
Female Fighter Requirements

- SOME states require
  - Serum Pregnancy test within 30 days of fight
  - Urine Pregnancy Test right before fight
  - Full Gynecological Exam
Fighter Medical Insurance

- Many fighters do not have medical insurance while training
- Mandatory medical coverage by promoter
Other players - Promoters

- UFC
- Golden Boy
- Top Rank
- Bellator
Other Players - Commissions

- Commissions purpose
  - Regulate combat sports for the protection of the public and to ensure the health and safety of the combatants.

- However
  - Political
    - Positions are appointed
    - No MMA in New York
  - Make the State money
Typical Event Coverage

■ Arrive about 2 hours before the event
  ■ Physical exam of each fighter/referee before event
  ■ Establish a relationship/normals with each fighter and to look for “red flags”
    ■ HR, BP
    ■ Face
    ■ Eyes
    ■ Heart/Lungs/Abdomen/Ribs
    ■ Hands/Ortho
Typical Event Coverage

- One or multiple physicians covering
- Scout out the area
- EMS – Nearest hospital
  - HAVE A PLAN
  - AED, O2, Board a must have
  - If EMS goes and no back up – event should be stopped until another rig arrives
Typical Event Coverage

- Sit Ringside
  - Observe
    - Defending themselves
    - Style change
    - Ready to be called in
    - Know the situation
  - No fight can start unless a doctor is ringside
Get to know your refs!!!!
Typical Event Coverage

- Post fight exam
  - Winners & Losers
  - Abridged
    - Depends on # of doctors
  - Mental Status
  - Neuro
  - Eyes
  - Hands
  - Address any complains
Suspensions

- **Mandatory Minimum Suspensions**
  - TKO – 30 days
  - KO – 60 days
  - Submission less than 1 minute – 30 days

- **As ringside physician you can**
  - Increase minimum suspension
  - Issue medical suspension until cleared by
    - Orthopaedics
    - Ophthalmology
    - Neurology
Suspensions

- Excessive Head Trauma
  - Some states allow for a physician to issue a medical suspension to a fighter if they have taken “excessive head trauma” during the course of the fight.
  - Even if the fighter is having no complaints and has a normal post-fight exam
  - Even if he/she won the fight
Common Injuries
Metacarpal Fracture
Dislocations

- It is dislocated?
  - Fracture???
- N/V status?
Lacerations
Lacerations

- Location, location, location
- What to look for
  - Can the fighter see?
  - Excessive blood loss
Lacerations

- Repair
  - On-site vs. hospital
    - Size
    - Location
    - Physician availability
    - Comfort level
Eye Trauma
Eye Trauma
Eye Trauma

- Any loss in vision/movement during/after fight...
  - Goes right to the ER
  - Slit lamp exam
KO

- Immediate Tx
  - CABs
  - Eyes
  - Neck
  - Oxygen
- Be patient
KO

- Post-fight Management
  - Mental Status
  - Full Neuro Exam
  - If a fighter experienced LOC for a long period of time – send to the ER
Concussions

- Post-fight Management
  - Mental Status
  - Orientation
  - Full Neuro Exam
  - Cognitive
  - Monitor
  - Educate
Concussions

Post-fight Management

TAKE HOME POINT

- Fighters do not complain
- If a fighter is complaining about concussion symptoms after a bout I would recommend sending them to the ER for further evaluation and imaging
Hot topics

- Therapeutic Use Exemptions
  - Testosterone Replacement Therapy
    - ARP issued a statement for ban in Jan, 2014
    - Nevada voted to ban in Feb, 2014
    - Some commissions still allow it
Hot Topics

- Weight Loss and Dehydration
  - Very similar to the crisis that wrestling faced in the late 1990’s and early 2000’s
  - Deaths involving weight cutting
  - Increased risk of head injury?
  - ARP supports a certification program similar to wrestling
Do you want to be a ringside doc?

- Get in touch with your state athletic commission
- Requires state medical license
- SOME states will have you work under a experienced ringside physician for a couple of cards before allowing you to work on your own
Association of Ringside Physicians

- Mentoring program
  - Ringside physicians around the country willing to bring students and residents to events to learn ringside medicine
  - Some states are more willing than others
ARP/ACSM Certified

- Certification
  - Certified Ringside Physician
  - Minimum requirements and pass a test
  - Not a requirement, but maybe some day
Association of Ringside Physicians

- Annual Conference
  - New Orleans
    - September 25-26
Association of Ringside Physicians

www.associationofringsidephysicians.org
References