On Site Care and OMT for the Combat Sport Athlete

Rance McClain, DO, FACOFP, FAOASM
Professor & Associate Dean, Clinical Sciences
William Carey University College of Osteopathic Medicine
Learning Objectives

- Learn the history of combat sports
- Understand what injuries the combat sports athlete is potentially subjected to
- Gain understanding of pre-event qualification of a modern combat sport athlete
- Be able to participate as the lead of the onsite medical team
- Care for and triage injuries in combat sports athletes
- OMM integration in combat sports athletes
Boxing History

- Historical evidence as far back as 4000 BC in northern Africa
- Very popular in Roman and Greek cultures
  - First known “ban” on boxing occurred under the emperor Augustus
  - Banned due to growing brutality of the sport
Boxing largely disappeared until the 17th century in Great Britain, when “prizefighting” reemerged.

- Bareknuckle boxing
- No rules, no weight limits, no round limits and no referee
- Often combined with other activities such as fencing and cudgeling
Boxing History

- Broughton’s Rules
  - Established in 1743 to protect fighters from death
    - 30 second count for a downed combatant
      - Self decided time out
    - No striking a downed opponent
    - No grabbing below the waist
    - “Mufflers” to be used – crude boxing gloves
    - Defined an area for competition
    - Set about standards for conduct of athletes and “seconds”
Boxing History

- Marquess of Queensbury Rules
  - Evolution of rules to closer to the modern rules
  - Drafted in 1865 by John Douglas
  - Adopted in US and Canada in 1889
Marquess of Queensberry Rules

1. To be a fair stand-up boxing match in a 24-foot ring, or as near that size as practicable.
2. No wrestling or hugging allowed.
3. The rounds to be of three minutes' duration, and one minute's time between rounds.
4. If either man falls through weakness or otherwise, he must get up unassisted, 10 seconds to be allowed him to do so, the other man meanwhile to return to his corner, and when the fallen man is on his legs the round is to be resumed and continued until the three minutes have expired. If one man fails to come to the scratch in the 10 seconds allowed, it shall be in the power of the referee to give his award in favour of the other man.
5. A man hanging on the ropes in a helpless state, with his toes off the ground, shall be considered down.
6. No seconds or any other person to be allowed in the ring during the rounds.
Marquess of Queensberry Rules

7. Should the contest be stopped by any unavoidable interference, the referee to name the time and place as soon as possible for finishing the contest; so that the match must be won and lost, unless the backers of both men agree to draw the stakes.

8. The gloves to be fair-sized boxing gloves of the best quality and new.

9. Should a glove burst, or come off, it must be replaced to the referee's satisfaction.

10. A man on one knee is considered down and if struck is entitled to the stakes.

11. That no shoes or boots with spikes or springs be allowed.

12. The contest in all other respects to be governed by revised London Prize Ring Rules.
Boxing History

- Professional boxing
  - National Boxing Association established in 1927
    - Set up to arrange championship bouts and oversee the sport
  - Three acclaimed boxing organizations today
    - WBC (World Boxing Council)
    - IBF (International Boxing Federation)
    - WBA (World Boxing Association)
Boxing History

- Amateur Boxing
  - Olympic boxing began 1904
  - International Amateur Boxing Association
    - Founded in 1946
    - Oversight of international boxing for non-professional combatants
    - Use of headgear
  - Golden Gloves and USA Boxing in the US
    - USA Boxing lifted ban on female competitors in 1993
Mixed Martial Arts (MMA) History

- Ancient Greek sport of Pankration
  - Contested in the early Olympic games
  - Combined striking and wrestling
- 19th century boxing matches often looked more like modern MMA until rules emerged
  - Bartitsu (England): judo, jujitsu, boxing, kickboxing and stick fighting
  - Merikan (Japan): “american fighting” KO/TKO, submission victories, rounds
Mixed Martial Arts (MMA) History

- Vale Tudo (anything goes)
  - Brazilian fighting competition
  - “no holds barred” style of combat
  - Gracie challenge
    - Gracie family would challenge anyone to competition, often held in garages or gyms
    - Became famous for being able to beat much larger or stronger opponents via submission due to talent in Brazilian Jujitsu
Mixed Martial Arts (MMA) History

- Ultimate Fighting Championship
  - Started in 1993 with first event in Denver, CO
  - Touted as an event to answer the question of what fighting style was superior to all others
    - Competitors came from boxing, wrestling, sumo wrestling, kickboxing, boxing and Jujitsu backgrounds
    - Won by Royce Gracie
Mixed Martial Arts (MMA) History

- Unified Rules
  - Drafted by the New Jersey State Athletic Control Board in 2001 after allowing MMA in 2000
  - July 30, 2009 adopted by the Association of Boxing Commissions
  - Stated specific rounds, attire, judging criteria, fouls, medical requirements and prohibited substances
Mixed Martial Arts (MMA) History

- Oversight of the sport of MMA varies by state
  - State office of athletics
  - Native American athletic commissions
  - National associations (ISCF, KICK, ISKA, etc)
- New York only state that bans MMA competition
Where does a Doctor fit in?

*Caution: Some images and videos contained in the PowerPoint show injuries sustained by combat sports athletes and can be considered graphic in nature*
Prior to the Event

- Prebout physical examination
  - Conducted just prior or just after contestant weigh-ins
    - Usually done the day prior to the event itself
  - Comprehensive physical examination
    - Vital signs and general appearance
    - Physical examination
Prior to the Event

- Vital signs
  - Resting systolic blood pressure greater than 150, diastolic blood pressure greater than 100
- General appearance – looking for deformities, general well-being (particularly signs of excessive dehydration)
- Eyes – including fundoscopic exam and test of acuity such as the Snellen eye chart
  - Worse than 20/200 uncorrected or 20/60 corrected vision
  - Soft contact lens allowed
  - Risk after eye surgery, newer procedures are not a contraindication to compete, but athletes are advised of risk involved
- Ears, Nose and Throat – including otoscopic exam
  - Evidence of acute nasal bone fracture
Prior to the Event

- Cardiovascular Exam – attention should be paid to any cardiac abnormalities, especially tachycardia, dysrhythmia, systolic and diastolic murmurs or cardiac enlargement
  - Resting heart rate must be below 100 BPM to qualify
- Respiratory system – looking for signs of acute or chronic infection or dyspnea
- Back and Chest – looking for deformities, tenderness, scars
  - Must include examination of the ribcage with compressive pressure to assess for recent injuries to the ribcage
- Abdomen – looking for hernias, masses, organ enlargement
  - Hepatosplenomegaly examination
- Genito-urinary system – a formal exam is generally not required
  - In a doctor’s office further evaluation is appropriate if a large hernia is suspected. Although a unilateral testis is not disqualifying in itself, it could prompt discussion; the same is true for one kidney or for breast implants
Prior to the Event

- **Musculoskeletal system** – looking for congenital or acquired deformities, range of motion, joint stiffness or laxity, signs of inflammation
  - Boxer’s fracture, muscle strength testing
- **Neurological Examination** – includes exam of the cranial nerves, as well as evaluation for tremors, locomotor impairment, dysarthria, gait /balance/posture disorders, reflexes.
- **Evaluation of mental status** - observation or testing; likewise, for mental disability, intoxication and psychiatric disorders.
Day/Evening of the Event

- Arrive early and make sure to follow up on anything that will happen that evening
- Make sure to note any changes to the event
- Note the safety aspects to the event setup
- Go over your event plan with anyone helping on medical coverage so everyone knows their role
- Meet with EMT/Paramedic crew
EMT/Paramedic Plan

- Verify that the ambulance is dedicated to the event and the venue
- Identify the location where the Paramedics will be stationed at the event
- Make sure they have the necessary equipment
  - Stretcher, spine board, cervical collar, oxygen and airway management equipment
- Clear path to the ring/cage and out of the venue
  - No stairs, elevator, obstructions, proper crowd control
- Verify what hospital injured competitors would be taken to if injured
  - Must have neurosurgery capabilities if head trauma injury
  - Can call the emergency department and notify them of the event and the possibility of transfer to their facility if needed
Examination/Treatment Room

- Verify you have adequate facilities to deal with injuries that do not need transported to the hospital
  - Quiet
  - Adequate lighting
  - Adequate space
    - Organize equipment
Doctor’s Equipment Bag

- Pen lights
- Disposable gloves (Nitrile)
- Stethoscope
- Otoscope
- Ophthalmoscope
- Blood pressure cuff
- Tongue depressor
- Gauze
- Airway management device
- Adhesive tape
Doctor’s Equipment Bag

- Nasal packing and nasal specula
- Wound dressings
- Medical scissors
- Ice bags
- Cotton tip applicators
- Steristrips and mastisol
- Suturing equipment kit including anesthetic*
- Sterile saline in prepackaged bottles
- Sanitizer solution
Final Meeting with Referee/Commission

- Make sure you have a good working relationship with your referee
  - They should trust your opinion and seek your advice if a contestant appears injured
- Discuss event concerns with the commissioner
  - Inspect the ring/cage for safety concerns
Meet with “cutman/woman”
Start of the Event

- Physician table
  - Closest to the entrance to the ring/cage
  - Away from corner workers
  - Unobstructed view
  - Near head official
  - Make sure you are in your seat whenever bouts are occurring
During the Event

- Monitor the bout at all times
- Understand the sport and how injuries occur
- Communicate your thoughts and concerns with the referee
- Attend to any injured combatants
Care of a Downed Combatant

1. Remove the mouthpiece if possible
2. Make sure the boxer has an adequate airway
3. Assess breathing
4. Exercise cervical precautions
5. Watch for vomiting or aspiration
6. Keep the athlete down until fully reactive, then assess for movement of the hands/feet and cervical pain
7. When stable the boxer may be sat up, then allowed to stand after further evaluation
8. Can be escorted to the corner with assistance
9. If available, a member of the medical team should stay monitor an athlete until they return to baseline status
Doctor Stoppage Opinion

- The physician enters the combat area only when a contestant is seriously injured or when called in by the referee.
- Enter with any supplies needed to conduct examination of the contestant.
- Quickly assess the situation with information obtained from the athlete, not corner persons.
- Communicate your decision to the referee.
  - The final decision to end the bout is the referees.
Doctor Stoppage Opinion

- If the cut poses a risk to underlying structures or bleeding obstructs the vision of the contestant
  - Supraorbital nerve
  - Infraorbital nerve
  - Lacrimal duct
  - Eyelid/tarsal plate
  - Vermillion border of lip
  - Compound nasal fracture
Doctor Stoppage Opinion
Doctor Stoppage Opinion

- Obstructed vision
  - Bleeding from cut
  - Swelling around eye
  - Trauma to the eye that affects vision without surrounding edema

- Physical condition
  - Fighter is too fatigued to be able to intelligently defend themselves
Care of Musculoskeletal Injuries

- Dislocations
  - Finger joints
  - Elbow
  - Glenohumeral
  - Jaw (suspect fracture)
  - Hip
  - Knee
  - Patella
  - Ankle
  - Toe
How Do Bouts End?
Decision

- **Unanimous Decision:** All judges agree on same contestant as a winner
- **Majority Decision:** Two judges score the bout for one contestant, the other judge scores the bout a draw (even)
- **Split Decision:** Two judges score the bout for one contestant, the other judge scores it for the other contestant
- **Unanimous Draw:** All judges score the bout even
- **Majority Draw:** Two judges score the bout a draw, the other declares a winning contestant
- **Split Draw:** One judge scores the bout a draw, the other two judges have different winners
Decision
KO/TKO

- Knockout (KO)
  - Legal strike or combination thereof that renders an opponent unable to continue

- Technical Knockout (TKO)
  - When the referee, official ringside physician, the contestant, or the contestant’s cornermen decide the contestant can not longer continue due to injury
KO/TKO
Boxing vs MMA

- **Boxing:** Referee pauses the action and counts to eight, assessing the contestants' ability to continue.

- **MMA:** If a contestant is unable to intelligently defend themselves, the bout is ended.
Submission

- The act of utilizing a grappling or Jujitsu technique to force an opponent to concede defeat via tapout or other means
  - Technical submission: Referee stops the bout due to injury or loss of consciousness of a contestant while in a submission hold
  - Submissions are divided into four main categories
    - Joint locks
    - Choke holds
    - Striking damage from the other contestant
    - Stating they can no longer continue (verbal submission)
Joint Lock Submission
Arm bar
Joint Lock Submission
Arm bar
Joint Lock Submissions

- Modified Omoplata
- Americana
- Knee bar
- Heel hook
Choke Submission
Guillotine choke (arm in)
Choke Submissions
Triangle choke (flying triangle)
Choke Submissions
Arm Triangle Choke
Choke Submissions
Rear naked choke
Damage Submission
Submission due to strikes
Verbal Submission
What’s The Worst That Could Happen?
Where does OMM fit in?

- Head/face
  - TMJ dysfunction
    - Muscle energy
  - Facial lymphatic and edema
    - Cross thumb nasal treatment
- Cranial
  - Strain pattern direct or indirect treatment
Where does OMM fit in?

- Cervical Spine
  - Cervical strain/sprain
    - Myofascial release, counterstrain
  - Thoracic cage
    - Rib articulatory treatment, muscle energy, HVLA
- Thoracic and lumbar spine
  - Vertebrae segmental dysfunction
  - Paraspinal muscle spasm
    - Muscle energy, HVLA, myofascial release
Where does OMM fit in?

- Upper Extremity
  - RTC strain
    - Spencer’s technique, counterstrain (subscapularis)
  - Contusions
    - Lymphatics, myofascial release
  - Joint dysfunctions
    - Radial head ME (elbow hyperextension injury)
    - BLT/FPR for wrist and finger dysfunctions
Where does OMM fit in?

- Lower extremity
  - Ligamentous injuries of the knee
    - Lymphatics, counterstrain, BLT
  - Ankle and foot dysfunctions
    - Myofascial release, counterstrain, lymphatics
Thank You!

Questions?