WORLD BOXING

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Medical Handbook 2025

1. World Boxing Medical Team Personnel (The Medical Jury)

World Boxing must have a Medical Jury. The Medical Jury is led by the Chair/Chairs who will oversee all medical aspects at a boxing competition. A minimum of 5 doctors must be present at the Continental Qualifiers, and a minimum of 6 doctors at the Olympic Games.

The duties of the Medical Jury members:

- Participate at the Entry Check, if requested
- Participate at the Pre-Bout Examinations at the Daily Weigh-Ins
- Participate as a Ringside Doctor
- Complete all injury registration documents
- Conduct Post-Bout examinations
- Follow the instructions of the Medical Jury Chairperson/CMO
- Contact Anti-Doping officers with CMO (how many tests daily and which laboratory)

2. Entry Check

Boxers themselves do not have to be present at the Entry Check. Team coaches and/or doctors bring relevant documentation to the Entry Check. Boxers must be declared Fit to Box and their Record Books must be signed. A decision to prevent a boxer from participating must be made by the Medical Jury representative. His/her decision is final and without appeal.

<u>The following documents must be provided:</u>

- The Boxer's Competition Record Book – with name and photo showing the boxer's face. If the boxer has a new record book (no bouts), then the old record book must also be presented.
- Review the Competition Record Book for any relevant information, such as probation periods – request SCAT documents, if relevant.
- Yearly medical exam - signed, stamped, and dated by examining physician (see Chapter 8.1)
- Pre–Competition Medical Certificate stating that the Boxer is Fit to Box and this document must not be older than 3 months. It must confirm that the Boxer is not infectious for HIV 1 and 2, Hepatitis B or C. Gender eligibility in the female category with SRY PCR screening test (only for female boxers at this time).
- Declaration of Sex Eligibility (at this time only for female boxers over 18 years old).
- A Declaration of Non-Pregnancy signed by Female Boxers, not older than 7 days
- before the Entry-Check.
- The Doping Control Consent Document signed by each boxer

The World Boxing Medical Jury member in charge of the Entry Check may declare a Boxer unfit to box if:

- All documents listed above are not presented or are incomplete.
- The boxer has been excluded from boxing because of an injury, typically the boxer may be serving a restriction period after a KO or RSC.

3. PRE-BOUT MEDICAL EXAMINATION

The purpose of this examination is to ensure that boxers are fully capable of boxing in their respective weight category.

- It is preferable that at least two Medical Jury Members are present at all pre-bout examinations - one Member is appointed to be in charge of the procedure.
- A minimum of two local doctors (or Team Doctors) may assist the Medical Jury members, who must instruct them of the content of this examination. Team Doctors may not approve boxers from their own countries.
- Boxer identifies himself/herself – the doctor checks the Boxer's Competition Record Book name; photo showing boxer's face; and accreditation card.
- On the first day of boxing, the boxers must have their blood pressure measured. This usually means that blood pressure must be measured on all athletes for the first two or three days of competition– *three nurses from the LOC are required for the first three days of competition to perform blood pressure checks.*
- All changes from previous examinations must be recorded.
- Only the Medical Jury member in charge of the Daily Pre-Bout Examination may declare a boxer unfit to box. If a boxer has been declared unfit to box, this Boxer's Competition Record Book must be brought to the Technical Delegate for disqualification.
- The Medical Jury member in charge of the Daily Pre-Bout Examination must register all new cuts and report these to the Medical Jury Chairman who can inform the Ringside Doctors, thus raising awareness during bouts.
- A Medical Jury member who is present at the competition as a Team Doctor may direct or assist as needed in the Daily Pre-bout examination but may not serve as a Ringside Doctor at that competition, unless specifically credentialed to do so.

<u>Examination:</u>

- Evaluate boxers gait while approaching, look for limping, balance problems,etc.
- Boxers must not have visible piercing.
- Ask if the boxer has any problems and examine if necessary.
- Inspect the face and head for cuts and bruises.
- Palpate the face for fractures – periorbital, nasal, maxillary, mandibular zones.
- Check pupils. Conduct pupillary light reflex.
- Intraocular/laser surgery: letter from specialist is needed stating fit to box.
- Inspect the mouth for loose teeth
- Check passive and active neck and back movements.
- Test active movements of shoulders, elbows, hips, knees and ankles.
- Inspect and palpate hands, forearms, and elbows.
- Palpate the abdomen for tenderness, splenomegaly, and hepatomegaly.
- Inspect skin for potentially contagious bacterial and viral infections, such as herpes.

Boxer with a cut at the Daily Pre-Bout Examination

Boxers may not box with open cuts. Cuts must be closed by subcuticular (buried) sutures, glue, strips or a combination of these. Sutures may be subcuticular, however simple interrupted, simple running, simple locked or various types of mattress sutures are not allowed. A facial cut can be covered using strips or a liquid or spray plaster. A bruise or an abrasion can be covered with a cut preventative substance such as non-petroleum skin-protective jelly.

All recent cuts should be registered so that cuts can be monitored during bouts. This document is then copied, and both documents are delivered to the Jury Chairperson who supplies one copy to each ring later in the day.

Disqualification at a Daily Pre-Bout Examination

The World Boxing Medical Jury member in charge of the Pre-Bout examination may declare a Boxer unfit to box if:

- The boxer has any acute injury (e.g. new serious cuts or fractures) or illness which would endanger that boxer, the opponent, or the officials.
- Findings or disclosed history of the following conditions:
    - Exposed open infected skin lesions
    - Recent surgery - within the last 90 days
    - Concussion symptoms, which will need clearance from a neurologist
    - Significant psychiatric disturbances or drug abuse
    - Any seizure activity within the last 3 months
    - Hepatomegaly, splenomegaly, or ascites
    - Pregnancy
    - Diabetes: requires laboratory documentation of HbA1c equal to or less than 7.5 mmol within 3 months
    - Persistent elevated blood pressure over 140/90 mmHg (if elevated, advise to recheck in ten minutes)
    - Medication (oral anticoagulant, ie blood thinners)
    - Temperature is above 38 Celsius/100.4 Fahrenheit
    - Heart rate: above 100

4. RINGSIDE DOCTORS

Only World Boxing appointed medical physicians may function as Ringside Doctors. The Ringside Doctors do not require a license to practice medicine in the competition country; they are allowed to offer essential first aid, advise a referee, offer advice on diagnostic and treatment modalities and attempt to ensure the health of all Boxers.

The level of medical care varies in different countries. Ringside Doctors are expected to offer a high “Standard of Care” based on best practice principles. For this reason, the World Boxing Medical Handbook is used to define the minimum standard of care. Services of a higher standard than those specified here are to be expected.

- 1 ring: minimum of 3 doctors are needed
- 2 rings: minimum of 5 doctors are needed

During a session, the Ringside Doctor may have to examine a boxer at different phases:

- Corner evaluation during a Bout
- In the ring evaluation of an injured Boxer
- Rapid evaluation outside of the Field of Play (FoP)
- Treatment Room Evaluation

The Ringside Doctor must:

- Continuously follow the action in the ring.
- Quickly recognize serious injuries and conditions.
- Signal the available Ringside Doctor that a Boxer needs a Post-Bout examination.
- If necessary, after being called by the referee, enter the ring and offer first aid to a distressed boxer.
- If requested by the referee, advise the referee if a boxer is Fit to Box.
- Evaluate all cut boxers as they leave the ring. Register the length, depth and location of cuts.
- Collect and report injury statistics and deliver these to the World Boxing Medical Jury Chair.
- Remain at the venue until the last boxer has finished his/her post-bout medical evaluations and has received any necessary medical recommendations or management plan before leaving the arena.
- Enter restriction period data in the Boxer's Competition book if necessary and report to the Jury Supervisor.

4.1. ENTERING THE RING

- The Ringside Doctor will enter the ring when the referee requests the doctor's evaluation and/or assistance in treating an injured or ill boxer.
- The Ringside Doctor must enter the ring immediately if there is a serious injury.
- The Ringside Doctor should bring needed equipment to include medical gloves, clean gauze, penlight, and oro-pharyngeal airway if needed, into the ring.
- Only the Ringside Doctor and the Referee will be allowed in the ring with the injured Boxer unless the Ringside Doctor/Medical Jury Chairperson requests assistance from another Medical Jury member or from local medical staff.
- The Ringside Doctor may, at his/her own discretion, indicate to the Referee or the Technical Delegate that he/she would like to examine a boxer between rounds; the Referee or Technical Delegate will then signal "Stop" at the beginning of the next round and the boxer will be escorted to the Ringside Doctor for evaluation.
- If there is a risk of serious injury to a boxer, the evaluating Ringside Doctor member must notify the Technical Delegate to terminate the bout, and this decision must take precedence over all other considerations.
- The Ringside Doctor must perform an independent evaluation of the boxer and not be persuaded by Seconds.

4.2. MANAGEMENT OF A "DOWN BOXER" IN THE RING

The Referee will always call the Ringside Doctor into the ring if there has been a knockout (KO) or serious injury to a boxer. The Ringside Doctor should enter the ring from the neutral corner to evaluate the injured or fallen boxer.

1. Unresponsive Boxer without spontaneous respiration (Non-Convulsing)
   - Enter the Ring
   - Remove mouth guard/open head guard strap if present
   - Evaluate responsiveness quickly, AVPU, pulse, pupils
   - If not breathing spontaneously but pulse is present – perform an observed finger sweep if there is a sign of broken teeth or foreign body, jaw thrust or chin lift if no suspected C-spine injury
   - If still not breathing spontaneously or have no pulse, begin CPR, call for EMS, insert oro-pharyngeal airway if no gag reflex, administer oxygen, and fully immobilize the spine for ring evacuation of the boxer

4.2.2 Unresponsive Boxer with spontaneous respiration (non-convulsing)
- Remove mouth guard (open head guard strap if present)
- Evaluate responsiveness quickly – AVPU, check pupils
- Clear airway, careful and observed finger sweep of broken teeth
- If not able to hold mouth open – jaw thrust/chin lift, call for EMS to prepare for ring evacuation of boxer
- Cervical protection – inline cervical protection
- Log Roll into recovery position
- Full cervical and spinal immobilization of the boxer onto to scoop stretcher or backboard to safely evacuate the boxer out of the ring
- Depending on the boxer's condition (alertness, vitals, etc), transfer the boxer to medical room for further evaluation or ambulance for transport to the hospital

4.2.2 CONVULSING BOXER

Post-traumatic convulsions/seizures are not typically dangerous. Post-traumatic convulsions are not necessarily associated with structural brain damage or with the development of epilepsy and have a positive outcome. Few boxers, if any, suffer secondary sequelae after a convulsion. Convulsions are not common in boxing but can be dramatic. Post-traumatic convulsions usually occur within seconds of impact and can last for several minutes. Convulsions more than 2-3 minutes should cause more concern and medication should be administered – usually 5 mg Diazepam intravenously or intramuscularly per minute until the seizure stops (10 - 20 mg usually suffices) or Midazolam 5 mg buccally. Avoid giving rectal doses in the ring.

All boxers who have received a head blow and who later convulse must be transferred to a hospital facility with neurosurgery capabilities for further evaluation and imaging immediately.

(Beware, sometimes the boxer awakes and reacts aggressively. Once the boxer recovers, check pupil diameters and pupillary light reflexes).

4.2.3 Removing a seriously injured Boxer from the Ring

Perform any necessary lifesaving treatment in the Ring. If the patient is stable, then secure and immobilize the patient before transporting out of the ring directly to the ambulance. Ensure that an IV line has been inserted. There is usually no point in taking a seriously injured athlete to the venue medical treatment room as this will only delay treatment. If a spinal injury is suspected, then extra attention must be given to spinal immobilization. If the boxer is unconscious, and it is feasible and does not delay transfer, ask the coach, trainer, teammates or

bystanders if they have any relevant information before leaving the venue.

Do not, under any circumstances, be pressured by team officials into moving a seriously injured boxer if you believe that movement would compromise life or limb; however, a rapid and safe evacuation to a safe area is usually the best course of action. If a boxer is unable to walk from the ring then assistance should be offered or the boxer should be carried from the FoP. Boxers will usually decide themselves if they are incapable of walking from the FoP unassisted but should be encouraged to lie down and await stretchering if there is the potential for serious injury or lower extremity fracture. Carrying an injured boxer from the ring requires training and repeated practice if it is to be carried out without further injury to the athlete or the carrying team. Ensure that the equipment to be used is adequate for the size and weight of the athlete to be evacuated and that the team carrying the athlete is physically capable of lifting and carrying the injured boxer. The FoP medical team leader must coordinate and supervise the evacuation. The evacuation route must be as direct as possible without unnecessary interruptions.

4.3. NEUTRAL CORNER EVALUATION OF A BOXER

When requested by the Referee, the Ringside Doctor climbs the steps to the neutral corner but does not enter the Ring. The doctor will be asked by the referee to evaluate a boxer and is expected to inform the referee if the boxer is fit to continue the bout. The doctor has approximately 1 minute to make a decision. The doctor is usually asked to examine the boxer for 1 of 4 conditions: cuts, nosebleeds, fractures, or potential head injury.

4.3.1. CUT EVALUATION

When evaluating a cut, the Ringside Doctor must consider:

- The cut
- A Nosebleed
- Unsteadiness, disorientation after a blow to the head
- Some other injury associated with cut – shoulder, knee, ankle, rib injury etc.
- Length of Cut
- Depth of Cut – abrasion, epidermal, dermal, and sub-dermal
- Is there capillary, venous or arterial bleeding present
- Location - Beware of cuts over important structures (NOE diagram/inverted bell zone), specifically bridge of nose, vermillion border, eyelids, tear ducts and supratrochlear nerve, etc.
- Does the bleeding affect the boxer's airway, breathing or vision?

4.3.2. DECISION TO STOP BOUT OR CONTINUE AFTER A CUT

Stop the bout if there is an arterial bleed or extensive venous

bleeding. Most cuts occur around the eyelids or eyebrows.

Most cuts will NOT require that the bout be stopped.

Many of the most important facial structures are contained within the inverted bell area (see below) - eyes, lacrimal ducts, nose, lips, mouth, naso-ethmoidal bones. Cuts in this area have potentially more serious consequences than cuts outside this zone. Bouts should be stopped when there are deep cuts in this zone.

Cuts outside of this zone rarely cause any structural damage unless they involve the supraorbital or supratrochlear nerves

4.3.3. MEDICATIONS USED BY SECONDS TO TREAT CUTS: ADRENALINE

Adrenaline (Epinephrine) is an effective vasoconstrictor and may also cause tachycardia. Wound absorption is not high due to local vasoconstriction and the amount of adrenaline that enters the venous system is probably low, particularly when mixed with non-petroleum skin-protective jelly. Non-topical use of Adrenaline is prohibited on the WADA Prohibited List.

4.3.4. HEMOSTATS

There are many effective hemostatic agents on the market today. Here is a list of some products:

- **Collagenates: -** when placed in a wound, can mold to the contours of the wound. They stick to the wound floor and soak up blood to form a gel. They can absorb up to 20 times their own weight in most cases. When combined with digital compression, this is an effective way of stopping bleeding. Removal of the alginate does not appear to tear off any clotting on wound floor so they can be removed after a minute.
- **Avitene:** – is a microfibrillar collagen hemostat which accelerates clot formation by enhancing platelet aggregation and by releasing proteins to form fibrin. It comes as a powder and as a liquid or sponge.
- **Thrombin**: - is a bovine protein that aids hemostasis particularly where there is minor bleeding from capillaries and small venules. It also comes as a powder.
- **Surgicel**: - another absorbable hemostat .
- **Arista** – according to the manufacturers, is a powder that is effective against arterial, venous and capillary bleeding. It contains “Microporous Polysaccharide Hemispheres”.
- **HaemoCer** is another effective hemostat.
- **Collodion**: - is a clear or slightly opalescent, highly flammable, syrupy liquid made from pyroxylin, ether and alcohol. It dries to form a transparent film that is used to close small wounds, abrasions and cuts.

4.3.5. Non-Petroleum and Petroleum skin-Protective jelly (ex. Vaseline)

Vaseline is effective in limiting skin friction and for filling a wound. It should be noted that it can be used to hide other hemostats which are not allowed in competition including super glue.

4.3.6. SUTURE TECHNIQUES

When a boxer’s cut needs to be sutured after a bout, it is important that the suturing doctor is aware of the type of sutures that are acceptable (i.e. subcuticular or buried sutures) if the boxer is to continue in the competition. Visible simple, running or mattress sutures are not allowed in competition.

4.4. NOSEBLEEDS

As a general rule, a boxer can continue boxing with a nosebleed unless there is one of the following conditions:

- Arterial bleed from the nose
- Excessive venous bleeding
- Hematoma of the septum
- Naso-ophthalmo- ethmoidal Fracture
- Posterior nasal bleeding with blood in the oropharynx

Nosebleeds usually occur after injury to vessels in the Kiesselbach plexus in the anterior nasal septum region (anterior nose bleed). Occasionally, epistaxis can have a posterior origin and these though rare, can be difficult to manage. Epistaxis is usually caused by local trauma or irritation but can be associated with systemic conditions such as a coagulation disorder or hypertension – these conditions should be excluded in the pre- bout examination.

A. NOSEBLEED MANAGEMENT

If there is an arterial bleed (blood spurting out of the nose) then the bout must be stopped. With a venous bleed, compress both nares and observe if the boxer winces with pain. If so, there is probably a fracture present and the boxer should be removed from the ring for further examination in the medical room.

If the boxer does not seem to be in pain, place a swab or nasal wool in the affected nares and continue to exert pressure on the nares. Nasal wool can be left in the nostril for the rest of the bout. Inspect the mouth for blood. The presence of blood in the back of the mouth or behind the uvula and soft palate indicates significant, and possibly, posterior bleeding and the boxer should be removed from the FoP for further examination.

If the athlete is stable, there is no sign of arterial bleeding, the athlete is not in pain and the bleeding ceases after compression of the nares, make a quick concussion assessment and if OK, the boxer may continue.

B. ARTERIAL NOSEBLEEDS

Arterial nosebleeds are rare but easy to diagnose. The blood spurts out of the nose whereas venous blood seeps from the nose. Arterial bleeds should be compressed immediately using the doctor's thumb and index finger to compress both nares. The nose should be compressed as the boxer leaves the ring and all the way to the treatment room to prevent increased blood loss.

4.5. SEPTUM HEMATOMA

After receiving a blow to the nose, a boxer may develop a septal hematoma which is a hematoma between the cartilaginous septum and the perichondrium/mucous plate of the nose. If allowed to develop, pressure from the hematoma may compress blood vessels leading to cartilage necrosis, the "Popeye" or saddle deformity of the septum. As well as being disfiguring, this lesion can affect nasal respiration by obstructing the nares. This should be treated with drainage of hematoma to avoid permanent injury.

4.6. NASO-ORBITO-ETHMOIDAL (NOE) FRACTURES ("NASOETHMOID FRACTURES)

These fractures may occur after a high energy frontal blow to the face and nose. There may be collapse and telescoping of the nasal bones under the frontal bone, or laterally into the orbit potentially causing a naso-orbito-ethmoidal (NOE) fracture. One measurement may have clinical significance for the Ringside Doctor - the distance between the center of each pupil (interpupillary distance) is usually twice that of the intercanthal distance (the canthus is the medial corner of the eye).
With NOE fractures, the interpupillary distance remains the same but the intercanthal distance increases (traumatic telecanthus).

Fractures in this complex anatomical area may be difficult to diagnose due to swelling and bruising. Fractures may occur as isolated injuries or as part of more complex facial fractures involving the anterior cranium. Look for associated ocular injury if the eyelids are not too swollen. Fluid from the nose may be due to CSF leaks and may indicate a fracture of the anterior cranial fossa with an anterior dural tear.

4.7. NASAL FRACTURE

When examining nasal fractures, always ensure that the airway is patent and that the athlete is breathing adequately. Inspect the pupils and perform a light reflex. Inspect the mouth for postnasal drip and stop the bout if there is posterior bleeding. Inspect the NOE area for deformity. Assess for any signs or symptoms associated with concussion/head injury.

4.8. CONCUSSION / HEAD BLOW

4.9. Referee should stop a bout if the boxer is demonstrating signs of altered consciousness. Occasionally, the Ringside Doctor will be called to evaluate a boxer for concussion in the neutral corner.

It is not possible for a Ringside Doctor to conduct a proper concussion evaluation of a Boxer in the short evaluation period (approx. 1 minute). Therefore, the Ringside Doctor must:

- Evaluate the boxer's state immediately after the blow – stunned, unbalanced, uncoordinated?
- Evaluate the boxers approach to corner – unbalanced, swaying, etc
- Is the Boxer disorientated, dismayed?
- Check Pupils – equal, reactive, nystagmus
- Check for signs of cranial nerve weakness
- Speak to athlete – are responses adequate – incorrect, slurred? (*this is difficult to assess if the doctor and the boxer do not speak the same language*)
- Conduct a rudimentary balance evaluation.

If the Ringside Doctor has any indication that the boxers´ response is abnormal or there is a suspicion of a concussion - the bout must be stopped and the boxer sent to the Treatment Room for a SCAT 5 assessment followed approximately 20 – 25 minutes later with Concussion Evaluation or transport to a hospital facility with neurosurgery capabilities if indicated.

5. POST-BOUT MEDICAL EXAMINATION

The Post-Bout Examination is one of the Ringside Doctor's most important tasks and must be carried out on ALL boxers after the bout.

When two uninjured Boxers leave the FoP it is sufficient that the Ringside Doctor inquires if the boxer has any complaints or injuries, and if so, examine that boxer.

All boxers who have lost a bout due to a KO, a RCS-I due to head blows or a boxer who has received multiple head blows must be directed to the medical/treatment room and examined by a doctor. This examination can be carried out by a local doctor.

This examination must include:

- Head Injury Assessment – immediately on arrival at the treatment room
- Cervical Spine Injury Assessment
- Concussion evaluation – approx. 20 - 30 minutes after the Head Injury Assessment.
- Other relevant examinations

The Ringside Doctor must note an appropriate restriction period in the boxer's World Boxing Competition Record Book and whether medical clearance is needed to return to box.

HEAD INJURY ASSESSMENT

The purpose of the examination is to immediately identify cranial and brain injuries. This should include:

- A focused medical history, including symptom review (beware that language barrier can be an issue with obtaining accurate information. Use phone apps or coach, etc, for translation if possible)
- Identify red flags such as headache, vomiting, diplopia, etc.
- This assessment must include a complete neurological examination including but not limited to cranial nerves, coordination/balance, orientation, etc.
- Examine the pupils for size, equality, and light reflex
- Examine the eyes for ocular movement and nystagmus
- Glasgow Coma Scale
- Examine for cranial fractures, deformities, binocular hematomas, Battle's sign, CSF leakage
- Otoscopy for blood (or blood behind an intact eardrum may indicate a basilar skull fracture)
- Neck pain / tenderness and cervical range of motion (ROM)

5.2. Cervical Spine Injury Assessment In The Treatment Room

If a cervical fracture is suspected, then the Ringside/local doctor must always suspect a spinal cord injury. In the acute FoP setting it is very difficult to evaluate the level of spinal cord injury. The medical team must therefore manage any potential spinal column injury as a spinal cord injury and transport the boxer to the hospital immediately.

5.3. Concussion Evaluation

The latest SCAT concussion evaluation tool (see Appendix A) is a **mandatory part of the Post-Bout examination for all Boxers** who have received a KO, an RSC due to head blows, or who have received multiple head blows where there is a possibility of the boxer having suffered a concussion.

We have added the following Modified Maddocks Questions (beware that language barrier can be an issue with obtaining accurate information. Use phone apps or coach, etc, for translation if possible):

- What is your name?
- Where are you?
- What day of the week and what year is it?
- Which country is your opponent from?
- Was the bout stopped? If so, what round?
- Red flags: headache, vomiting etc.

Ringside or Local Doctors must:

- Complete SCAT-5 card correctly
- Take a copy
- Give the boxer information on symptoms and contact a doctor should symptoms worsen
- The Ringside Doctor decides the minimum suspension period and enters this into the boxer's World Boxing Competition Record Book .

5.4. CT Scan – When to Refer a Boxer

A CT Head Scan is useful in diagnosing intracranial hemorrhage and cranial fractures. The Ringside/local Doctor should refer a Boxer for a CT Head Scan with:

- All incidences of Loss of Consciousness – irrespective of GCS at time of evaluation
- examination and SCAT 5 results
- Persistent Amnesia at time of examination
- GCS 14 or less
- Deteriorating condition

Intracranial bleeds can be present even if the GCS at time of examination is 15. If a Boxer is sent to the hospital, then the Ringside Doctor must get the name of that hospital. If a local doctor accompanies the boxer then the Ringside Doctor must register the name and telephone number of that doctor for proper follow up on the boxer's condition, labs and imaging studies.

5.5. Sending a Boxer to THE Hospital

If a boxer is sent to the hospital, then the Ringside Doctor must register the name of that hospital. If a local doctor accompanies the boxer then the Ringside Doctor must register the name and telephone number of that doctor. Similarly, if the boxer is accompanied by personnel from their delegation the ringside doctor must register the contact information of the accompanying person for follow up on boxer's condition, labs and imaging studies.

6. Medical equipment At All World Boxing Events

6.1. Equipment to be Brought to an Event by Medical Jury Members:

- Penlight
- Oro-pharyngeal airway
- Blood pressure cuff
- Stethoscope
- Pulse oximeter
- Otoscope
- Ophthalmoscope

6.2. Medical Equipment to be Supplied by the LOC: Local Doctors / ParaMedics Will Supply

Minimal medical equipment available at Ringside:

- Stretcher
- Backboard with straps, basket stretcher
- Defibrillator.
- Oxygen tanks with connecting tubes and masks
- Cervical collar
- Oro-pharyngeal airway
- Clean disposable gloves (Sizes 8 – 9, Large, Medium, Small) – one new box for every day
- Swabs, gauze
- Penlights
- Hydrogen Peroxide liquid
- Antiseptic Handwashing liquid

6.3. Medications To Be Supplied by LOC and Available at the FOP

The following injectable medications must be available at ringside – but must be in the control of and administered by the local medical doctor if necessary.

- Salbutamol
- Adrenalin – 1mg/ml (1: 1000) 20 vials daily
- Diazepam or Buccal Midazolam
- Medications for pain
- Anti-emetic
- Glucose 50 mg/ml infusion bag
- IV Saline
- Treatment room - Sufficient area to examine and treat boxers. Examination table with appropriate light to allow the Ringside Doctor to see and treat injuries. Adequate equipment and medication for any necessary intervention including; venous cannulas, infusion sets, wound cleansing equipment, plasters, swabs, wound glue, and suture equipment.

7. Ambulances

Ambulance services are to be supplied by the LOC:

- At competitions with one ring – a minimum of one ambulance must be present at all times. (depending also on the number of participants).

- The ambulance(s) must arrive 60 minutes before the start of the first bout.
- The ambulance(s) may only leave the venue after the last boxer has left the venue.
- There must be proper and nearby parking space for the ambulances just outside the event hall to allow for unhindered evacuation.
- Ambulances must meet the CEN 1789:2014 Standard (or equivalent) – which is the European Union standard for ambulances and medical transportation vehicles.
- Ambulance staff must have ALS (Advanced Life Support) skills.

8. Suspension Periods

A suspension period is a period of time in which a boxer is not allowed to train, spar or box in competition. Suspension periods are enforced to protect the boxer's own health. Restriction periods should be recorded carefully.

8.1. Single Occurrence of Knockout or RSC-I

No Loss of Consciousness:
If a Boxer suffers a knockout as a result of a blow or blows to the head or if the bout is stopped by the referee because the boxer has received heavy blows to the head, then the boxer may not take part in boxing or sparring for a period of at least 30 days.

Loss of Consciousness:
The Boxer may not take part in boxing or sparring for a period of at least 3 months (90 days).

8.2. Double Occurrence of Knockout or TKO

8.3. If within a three month period, a boxer loses twice by KO or RSC due to head blows, the boxer may not take part in boxing or sparring for a period of three months (90 days) after the second occurrence.

8.4 Triple Occurrence of Knockout or TKO

If within a 12 month period the boxer suffers three KOs OR if three bouts are stopped by the Referee due to the Boxer receiving heavy blows to the head, then the boxer may not take part in boxing or sparring for a period of one year after the third occurrence. Any combination of knockouts or RSC head injuries that equals three under these circumstances qualifies for a one year suspension.

5. Protective Regulations

Any boxer who loses a difficult bout as a result of many blows to the head, or who is knocked down in several successive competitions, may be given a suspension period which bars him/her from taking part in boxing or sparring for a period of 30 days on the advice of the Medical Jury. This protective regulation applies when the knockout or severe head trauma occurs in training or in any other activity (sport, car accidents, etc.).

Before a boxer is allowed to return to sparring or boxing after the restriction periods have elapsed, he/she must be declared as fit by his/her primary medical doctor or by a neurologist. It is highly recommended that a boxer obtain brain imaging such as CT scan or MRI before return to sparring or boxing.

MEDICAL CERTIFICATES

Boxers participating in World Boxing tournaments must have:

- A yearly medical examination by a competent and registered medical doctor.
- A Pre-Competition Medical Certificate that states that the Boxer is Fit to Box within 3 months of a competition.

8.6 YEARLY MEDICAL EXAMINATION

(The information below should be fully written and documented in the passbook)

World Boxing yearly medical examination should be composed of:

- A review of the family history and past medical history.
- Review of previous surgical operations which could affect a boxer's ability to box.
- A full evaluation of cardiac, respiratory and neurological function.
- Vital signs (values documented in the record book directly)– resting respiratory rate, resting pulse, resting blood pressure, pulse oximetry, and GCS.
- Ophthalmic examination – pupils, pupillary light reflex, nystagmus, chamber hemorrhages and retinal tears.
- Tympanic membrane inspection for rupture.
- A musculoskeletal examination for injury.
- Evaluation of neuropsychological or neurocognitive changes in the previous year.
- A check if there have been any medical suspensions and that the issue has been resolved.
- Review of medications and ensure that no TUEs (therapeutic use exemptions) are required.
- Diagnose and treat any other conditions.
- HIV, Hepatitis B and C testing within 6 months of competition is required
- HIV and Hepatitis B are absolute contraindication for boxing.
- Hepatitis C positive boxers who have been treated successfully may compete once proof of negative viral load is presented prior to competition.

8.7 Pre-Competition Medical Certificate

The purpose of this examination is to ensure that the boxer is not entering a competition with any new or recent injuries, illnesses or concussion symptoms.

The Pre-Competition Medical Certificate (see below) must not be more than 3 months old.

The doctor confirms this by signing the Boxers Competition Record Book. Blood Tests must also confirm that the Boxer does not have Hepatitis B, C or HIV 1 & 2. If previous blood tests show Hepatitis B immunity, then documentation of vaccination record must be provided.

The doctor also confirm the following:

- Gender eligibility in the female category with SRY PCR screening testing (only for female boxers at this time).
- No seizure activity in the past 3 years
- For diabetic boxer - Laboratory documentation of HbA1c equal to or less than 7.5 mmol within 3 months
- No current history of significant psychiatric disturbances or drug abuse
- Boxer is not taking anticoagulants/blood thinners

9. Disqualifying Conditions From Boxing – advice to Medical Practitioners

Evidence of or disclosed history of the following conditions in an annual and/or pre-bout examination:

- Severe chronic infections
- Severe blood dyscrasias e.g. Sickle cell disease
- History of Hepatitis B
- Hepatitis C (unless treated, has zero viral load and cleared by specialist)
- HIV infection
- Refractive and intraocular surgery, cataract, retinal detachment
- Myopia of more than -5.0 diopters
- Recorded visual acuity in each eye of:
    - uncorrected worse than 20/200 and corrected worse than 20/50
- Exposed open infected skin lesions
- Significant congenital or acquired cardiovascular, pulmonaryor musculoskeletal deficiencies or abnormalities *
- Unresolved post-concussion symptoms, which will need clearance from a neurologist

DISQUALIFYING CONDITIONS (CONTINUED):

- Significant psychiatric disturbances or drug abuse
- Significant congenital or acquired intracranial mass lesions or bleeding
- Any seizure activity within the last 3 years
- Hepatomegaly, splenomegaly, or ascites
- Uncontrolled diabetes mellitus or uncontrolled thyroid disease
- Pregnancy
- Any implantable device which can alter any physiologic process

* In certain cases, it may be difficult to decide if a boxer can box with an abnormality. Regarding the hand, in order to box at an international level, the boxer must at least have a thumb and two other fingers. Regarding the foot, the proximal two-thirds of the foot (the hind foot and middle foot) must be present – this allows boxers with amputated toes to compete, but the metatarsals must be intact. Boxers with another type of deformity must apply to the World Boxing Medical Commission for approval.

10. HYGIENE RULES FOR RINGSIDE DOCTORS

Boxing hygiene is an important topic and essential in preventing the transmission of diseases. These regulations are important for Ringside Doctors, Boxers, Coaches, and Referees & Judges.

10.1. DISPOSABLE GLOVES

Disposable gloves must be used when examining an injured boxer. Splashes of blood on the skin should be immediately washed away with soap and water or disinfectant. Splashes of blood in the eyes or mouth should immediately be rinsed away with plenty of water. If other surfaces are accidentally contaminated, they should be cleaned with a fresh 10% solution of household bleach diluted in water.

10.2. USED GAUZE

The most frequent boxing injuries are cuts and abrasions. Nosebleeds are also common. HIV and Hepatitis may be transmitted through the exchange of infected blood. It is therefore theoretically possible that diseases may be transmitted from open wounds. For this reason, coaches, referees and doctors must use clean gauze and disposable gloves when examining cuts or abrasions. The used gauze should be disposed of in sacks designated for that purpose at the ringside.

10.3. Medications During Bouts

The administration of nasal, oral or injectable medications during a bout is forbidden.

10.4. Smelling Salts or Stimulants During a Bout

No stimulants or smelling salts are allowed.

10.5. Mouth guards + Dentures

A boxer should never use a borrowed mouth guard. The mouth guard should fit exactly and comfortably. A poorly fitting mouth guard is useless and can cause buccal irritation or injury. A mouth guard that has been knocked out of the mouth should be thoroughly washed before replacing it. No boxer should be permitted to wear dentures during a contest. Boxers wearing braces should have the written consent of their orthodontist and have a mouth guard that is fitted to their own braces.

Appendix A – Latest SCAT Tool

http://bjsm.bmj.com/content/bjsports/51/11/851.full.pdf