



New York State Athletic Commission

A Division of the New York Department of State

MEDICAL STANDARDS FOR COMBAT SPORTS PROFESSIONALS

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INTRODUCTION

This manual is intended for the use of professional combatants, managers, trainers and promoters in New York State. It includes the medical requirements that professional combatants must meet in order to compete in New York. It also includes a number of medical policies and standards that have been adopted to protect the safety and wellbeing of combat sports professionals within the State. It contains both specific and general policies concerning health and safety as well as some procedures relevant to the administration of the Commission's duties. It is not all inclusive, and is not intended to, does not, and may not be relied upon to create any rights, substantive or procedural, enforceable at law by any party in any matter civil or criminal. Nor are any limitations hereby placed on otherwise lawful prerogatives of the Department of State or the New York State Athletic Commission.

BACKGROUND

The New York State Athletic Commission is vested with the sole direction, management, control and jurisdiction over all combat sports and sparring matches or exhibitions to be conducted, held or given within the state of New York. Within the Commission there is established the Medical Advisory Board ("MAB") which exists to prepare and submit to the Commission for approval regulations and standards for the physical examination of professional combatants. The MAB consists of nine members, appointed by the Governor. Each member of the MAB is duly licensed to practice medicine in the state of New York, and has practiced medicine for at least 5 years. In addition to the MAB, the Commission has appointed a Medical Director who assists in implementing the recommendations of the MAB and advises the Commission on important matters relating to health and safety. As established by the Commission, the Medical Director (also referred to as the Chief Medical Officer) must be a NYS licensed physician for at least 5 years and board certified in neurology, neurosurgery or a closely related specialty.

PART I. MEDICAL REQUIRMENTS FOR LICENSURE

MEDICAL ELIGIBILITY OF COMBATANTS

In order to be licensed and considered medically eligible to compete in a professional MMA or boxing event in New York, a comprehensive medical evaluation process must be completed by all applicants. This process includes the following tests and examinations:

1. MRIs:

All combatants fighting in New York must take an approved MRI exam within 3 years of any bout. Unless otherwise required by the Commission, the following MRI exams are acceptable:

Type of Acceptable MRI Scan:

- 1.5 Tesla magnet (minimum) or 3 Tesla magnet

Required MRI Sequence(s):

- Susceptibility weighted imaging (SWI);
- T1 weighted images;
- T2 weighted images;
- FLAIR;
- Diffusion weighted image (DWI);
- Gradient echo (GRE)

To ensure sufficient time is available to review a combatant's MRI results, the Commission requires all MRI brain results to be submitted at least 3 days before a scheduled bout. Currently a MRI brain scan submitted to the NYSAC for medical clearance to fight and which shows evidence of prior TBI is grounds for disqualification of the fighter and denial of license to fight in New York State.

2. ELECTROCARDIOGRAM (EKG):

An EKG or electrocardiogram is a test that checks for problems with the electrical activity of your heart. It is conducted by placing electrical leads on various parts of the patient's body while a machine records and measures the heartbeats. Once the test is finished the results are printed on a special chart which records the information in sharp spikes which are reviewed by medical professionals. Since EKGs provide valuable information about a combatant's heart health, the Commission requires all combatants to have a 12-Lead EKG at least once within 12 months of competing in New York. To ensure sufficient time is available to review a combatant's EKG results, the Commission requires all EKG results to be submitted at least 3 days before a scheduled bout.

3. DILATED EYE EXAMINATION:

All combatants fighting in New York must demonstrate sufficient eye health. Having healthy eyes is necessary as otherwise a combatant might not be able to adequately defend him/herself in the ring. To prevent against unnecessary injuries, the MAB and the Commission require dilated eye examinations performed by an ophthalmologist (must be done within a year of competing in New York). To ensure sufficient time is available to review a combatant's eye examination results, the Commission requires all eye results to be submitted at least 3 days before a scheduled bout.

In addition to requiring dilated examinations, the MAB and the Commission have established the following policies regarding eye health:

- Combatants who have had surgeries which alter the structural integrity of the globe are contraindicated for participation in combat sports and will not be permitted to compete. Such surgeries include, but are not limited to: cataract surgery, implantation of intraocular artificial lenses devices;
- Combatants who have had Lasik surgery where a lens flap is created are not permitted to compete;
- Combatants who have had radial keratotomy are not permitted to compete;
- Combatants must not present with "Major Ocular Pathologies" such as:
 - Anterior Chamber Angle Abnormalities;
 - Glaucoma or Suspicion of Glaucoma;
 - Lens Abnormalities;
 - Peripheral Retinal Abnormalities;
 - Macular Abnormalities;
 - Diplopia or Extraocular Muscle Palsy;
 - Active Inflammation.
- Combatants must have uncorrected visual acuity of 20/200 or better in each eye;
- Combatants must have corrected visual acuity of 20/40 or better in each eye;
- Combatants with red green color blindness can compete after obtaining medical clearance to fight from an ophthalmologist.

4. BLOOD TESTING:

For the safety of all competitors appearing in New York, the Commission requires each combatant to undergo various tests to determine the presence of certain communicable diseases and/or other conditions which are contraindicated for combat sports.

The following tests must be completed before being eligible to compete in New York:

- Hepatitis B (must be done within a year of competing in New York);
- Hepatitis C (must be done within a year of competing in New York);
- HIV (must be done within a year of competing in New York);
- CBC with platelet count (must be completed once prior to date of licensing in New York. Only tests done within 1 year prior to date of licensing are considered valid);
- Pregnancy test (*female combatant only – must be done within 30 days of competing in New York).

To ensure sufficient time is available to review a combatant's blood results, the Commission requires all blood work be submitted at least 5 days before a scheduled bout.

5. URINE TESTING:

The use of illicit substances and Performance Enhancing Drugs (PEDs) presents a grave and growing threat to the integrity of athletic competition within the combat sports industry. The Commission is in the process of formulating a comprehensive drug testing policy for combat athletes who fight under the jurisdiction of the NYSAC. Currently all combatants fighting in the State undergo mandatory urine testing for examination of prohibited substances. The urine testing is performed by the Commission at the combat sports event under the supervision of an appointed inspector. Combatants are not permitted to glove up until the required urine collection is completed. A combatant who violates the Commission's policy on banned substances may be subject to fines, suspensions, revocation of a license/permit, forfeiture of his/her purse and may have the result of a contest changed to a "no-contest."

6. PHYSICAL EXAMINATION:

In addition to the foregoing, all professional combatants fighting in New York must undergo physical examinations, including neurological and neuropsychological examinations that indicate medical fitness.

Combatant physical examinations are generally performed at the weigh-in for each professional event. Each time a combatant fights in New York, the combatant will undergo a comprehensive full physical examination, conducted by a Commission appointed doctor.

After the weigh-in, a combatant will also be examined by a ring-side physician immediately before the bout to ensure that there are no changes to the fighter's health. A similar examination will also occur following each bout or if needed during the bout itself. A combatant may be denied a license/permit and/or suspended as a result of any abnormal findings during any such examinations.

7. HIGH RISK COMBATANTS

As competing in combat sports is highly physically demanding, the MAB and the Commission have established heightened screenings for certain combatants who fall into high risk categories. A High Risk Combatant is a combatant who falls into any one, or more, of the following categories:

- 40+ years old;
- 6 consecutive losses in any manner in any professional combat sport;
- 3 consecutive losses by TKO/KO;
- 1+ year(s) of inactivity after start of professional career;
- 10 losses or more as a professional combatant;

For any combatant who falls into one, or more, of these categories, additional testing to assess cardiovascular and neurological fitness to fight may include:

1. Magnetic Resonance Imaging (MRI) of the brain with susceptibility weighted imaging (SWI) or gradient echo imaging (GRE).
2. Magnetic Resonance Angiogram (MRA) of the Brain.
3. Neurological evaluation performed by a neurologist.
4. Formal neurocognitive testing either via a neuropsychologist (pen and paper testing) or computerized testing such as IMPACT with a notation if any deterioration from the baseline (first) assessment (if available). For non-English speaking combatants, interpreter mediated testing or testing in native language is acceptable.
5. Cardiac evaluation performed by a primary care physician/ internist with referral to cardiologist if needed.
6. Additional blood work including a complete blood count (CBC) with platelet count and complete metabolic panel (SMA20) which includes hepatic tests, blood urea nitrogen, creatinine and glucose, lipid profile, thyroid profile.

CHART 1 - MEDICAL ELIGIBILITY FOR LICENSURE

Required Test	Additional Information
<p>Brain MRI Scan with a 1.5 or greater Tesla Magnet. Required MRI Sequence(s):</p> <ul style="list-style-type: none"> • Susceptibility weighted imaging (SWI); • T1 weighted images; • T2 weighted images; • FLAIR; • Diffusion weighted image (DWI); • Gradient echo (GRE) 	<p>Every three (3) years or as required by NYSAC Chief Medical Officer.</p>
<p>Electrocardiogram (EKG):</p> <ul style="list-style-type: none"> • 12 Lead 	<p>Every twelve (12) months or as required by NYSAC Chief Medical Officer.</p>
<p>Dilated eye examination:</p> <ul style="list-style-type: none"> • By a licensed ophthalmologist (Must be an MD or a DO) 	<p>Every twelve (12) months or as required by NYSAC Chief Medical Officer.</p>
<p>Blood testing:</p> <ul style="list-style-type: none"> • HIV serology • Hepatitis B – surface antigen • Hepatitis C – antibody • CBC with platelet count (one-time unless otherwise indicated by Chief Medical Officer) • Pregnancy test (*women only) 	<p>Not more than one year (365 days) prior to any contest or exhibition. *Pregnancy test must be conducted not more than thirty days (30) prior to any contest or exhibition.</p>
<p>Urine testing:</p> <ul style="list-style-type: none"> • Urine samples for illegal drugs 	<p>See below</p>
<p>Physical:</p> <ul style="list-style-type: none"> • Conducted by NYSAC Panel Physician. 	<p>See below</p>

- All of these tests must be approved by the CMO/ACMO prior to final medical clearance of the applicant.
- In the event that a test result is abnormal the candidate may need to undergo additional medical assessments/clearances.
- Special guidelines are in place when considering the “high risk” combatant (see above)
- When considering candidates who submit medical evaluations written in a language other than English, special guidelines exist to ensure that this information is translated appropriately and is not misconstrued.

NYSAC MEDICAL TEAM PROCEDURES ON FIGHT DAY

1. The medical team comprises of the Chief Medical Officer (CMO), Assistant Chief Medical Officer (ACMO) and 3 to 5 experienced ringside physicians.
2. In addition to the medical team, an EMS team with an ambulance is present at the venue.
3. The medical team performs a full physical at the time of the weigh in to determine the combatants' fitness to fight.
4. A more abridged physical evaluation is performed on fight day (pre-fight physical).
5. A ringside physician shall step up to the ring canvas/ enter the cage in-between each round to check the fighter.
6. A member of the medical team may signal the referee to call a time out to assess a fighter if needed.
7. After the fight, the combatants are examined by members of the medical team for any injuries before they are cleared for discharge.
8. All fighters need to obtain final medical clearance after a fight before they can receive their monies from the Commission.

PART II. ADDITIONAL MEDICAL POLICIES AND STANDARDS

BANNED SUBSTANCES:

All combatants appearing in New York are required to undergo mandatory drug testing for both illicit and unlawful substances. In addition to substances which are prohibited by the New York Health Laws and Penal Laws the following substances are prohibited:

1. Non-Performance Enhancing Substances

- Amphetamines (amphetamine and methamphetamine)
- Barbiturates
- Benzodiazepines
- Cocaine metabolites
- Marijuana metabolites
- Methadone
- Methaqualone
- Opiates (codeine and morphine)
- Phencyclidine
- Propoxyphene

2. Performance Enhancing Substances

- 1-Testosterone &/or Metabolite/ 1-Androstendiol/ 1-Androstendione
- Bolasterone Metabolite
- Boldenone/ Boldione/ Quinbolone Metabolite
- Calusterone Metabolite
- Clenbuterol
- Clostebol Metabolite
- Danazol/ Ethisterone &/or Metabolite
- Dehydrochloromethyltestosterone (DHCMT) Metabolite
- Dihydrotestosterone/ Drostandiol &/or Metabolite
- Desoxymethyltestosterone Metabolite
- Drostanolone &/or Metabolite
- Estra-4,9-dien-3,17-dione Metabolite
- Fluoxymesterone Metabolite
- Formebolone Metabolite
- Furazabol Metabolite
- 4-Hydroxytestosterone/ Formestane Metabolite
- 6a-Methylandrostandione Metabolite
- Mestanolone Metabolite
- Mesterolone &/or Metabolite
- Methandrostenolone (Methandienone, Dianabol) Metabolite
- Methandriol &/or Metabolite
- Methasterone Metabolite
- Methenolone &/or Metabolite
- Methylnortestosterone Metabolite
- Methyltestosterone Metabolite
- Methyl-1-testosterone &/or Metabolite
- Mibolerone &/or Metabolite
- Nandrolone/ 19-Norandrostandione/ 19-Norandrostandiol Metabolite

- Norclostebol Metabolite
- Norethandrolone/ Ethylestrenol Metabolite
- Oxabolone Metabolite
- Oxandrolone &/or Metabolite
- Oxymesterone
- Oxymetholone Metabolite
- Prostanazol Metabolite
- Stanozolol Metabolite
- Stenbolone &/or Metabolite
- Testolactone Metabolite
- Testosterone/ Androstendione/ Androstendiol/ DHEA (T/E Ratio >6)
- Trenbolone Metabolite

3. Masking Agents:

- Probenecid
- Epi-testosterone (> 200 ng/mL)

The use of illicit substances and Performance Enhancing Drugs (PED) presents a grave and growing threat to the integrity of athletic competition within the combat sports industry. The use of illicit substances and PEDs in professional combat sports is strictly prohibited by the New York State Athletic Commission. To deter and combat illicit substance and PED use in professional combat sports, the Commission shall seek administrative license revocation, medical suspension, purse forfeiture, and additional fines in any instance in which a professional combatant engages in doping and/or illicit drug use.

The New York State Athletic Commission does not recognize a therapeutic use exemption (TUE) for testosterone replacement therapy.

Combatants are not to use any drugs, medications and supplements between the time of the weigh-in physical and the conclusion of the combative sport event unless the combatant has provided notice to the New York State Athletic Commission (NYSAC) and received written approval.

The use of intravenous fluids for hydration prior to the event is not allowed unless the combatant has provided notice to the New York State Athletic Commission (NYSAC) and received written approval.

NONSTEROIDAL ANTI-INFLAMMATORY DRUGS (NSAIDS) POLICY:

Combatants participating in a combative sport event should avoid the use of non-topical non-steroidal anti-inflammatories (NSAIDS) within one (1) week of a combative sport event because of a potential increased risk of bleeding. Caution should also be exercised regarding the use of NSAIDS while actively sparring. Use of NSAIDS within one week of a combative sport event may result in cancellation of the match. Drugs that are considered NSAIDS include but are not limited to:

- ARTHROTEC
- ASPIRIN (Ecotrin, Empirin, Halfprin, Bayer, Anacin, Zorprin, Excedrin, Bufferin)
- CHOLINE MAGNESIUM TRISALICYLATE (Trilisate)
- DICLOFENAC (Voltaren, Voltaren XR, Cataflam, Flector, Voltaren Rapide)
- DIFLUNISAL (Dolobid)
- ETODOLAC (Ultradol)
- FENOPROFEN (Nalfon)
- FLURBIPROFEN (Ansaid, Froben, Froben SR)
- IBUPROFEN (Motrin, Advil, Nuprin, Rufen, Neoprofen)
- INDOMETHACIN (Indocin, Indocin SR, Indocin IV, Indocid)
- KETOPROFEN (Orudis, Orudis KT, Actron, Oruvail, Orudis SR)
- KETORALAC (Toradol)
- MECLOFENAMATE
- MEFENAMIC ACID (Ponstel, Ponstan)
- MELOXICAM (Mobic, Mobicox)
- NABUMETONE (Relafen)
- NAPROXEN (Naprosyn, Aleve, Anaprox, EC-Naprosyn, Naprelan)
- OXAPROZIN (Daypro)

If unsure whether a painkiller is an NSAID, the combatant is advised to contact the NYSAC prior to ingestion of drug.

ORTHOPEDIC BRACES AND SLEEVES:

Orthopedic braces are not permitted for in-use competition due to the risk of injury caused by incidental contact. Combatants must be medically cleared to compete without such braces.

KNEE SLEEVES (BOXING):

Combatants are permitted to wear a knee sleeve during a bout under the following conditions: (1) the combatant receives no competitive advantage from wearing the sleeve; (2) the knee sleeve does not pose any danger to the combatant's opponent; and (3) the combatant without the knee sleeve is found medically fit to compete by the physician appointed by the Commission to examine the combatant prior to the scheduled bout.

KNEE AND ANKLE SLEEVES (MMA):

Combatants are permitted to wear a knee and/or ankle sleeve during a bout under the following conditions: (1) the combatant receives no competitive advantage from wearing the sleeve; (2) the sleeve does not pose any danger to the combatant's opponent; and (3) the combatant without the sleeve is found medically fit to compete by the physician appointed by the Commission to examine the combatant prior to the scheduled bout. Elbow sleeves are not permitted.

In order for the Commission to properly evaluate a knee sleeve that a combatant wishes to wear during a bout (boxing or MMA), the combatant or combatant's representative must present such knee sleeve to the Commission in a timely manner.

In order for the Commission to properly evaluate an ankle sleeve that a combatant (MMA) wishes to wear during a bout, the combatant or combatant's representative must present such ankle sleeve to the Commission in a timely manner.

BREAST IMPLANTS:

Combatants with breast implants are allowed to fight. Combatants need to acknowledge the risk of rupture of breast implants during the fight. If a rupture is suspected, the combatant is advised to follow up with a plastic surgeon as soon as possible.

COSTS AND FEES FOR TESTING:

One of the primary functions of the Commission is to ensure the health and safety of those who participate in a combat sport professionally within the State. State Law requires that certain costs and fees for medical testing be borne by the promoter. For more information regarding specific tests and/or approved facilities please contact the Commission at (212) 417-5700.

CYSTS:

Clinical literature suggests that large middle cranial fossa arachnoid cysts are associated with an increased risk of intracranial hemorrhage. Evidence regarding increased risks associated with other arachnoid cysts (i.e., small anterior or middle cranial fossa cysts or posterior fossa cysts of any size) is unknown. It is proposed that combatants with large middle cranial fossa cysts (as determined clinically) will not be allowed to compete in New York State. Determination of medical licensure for combatants with other types of arachnoid cysts will be assessed on a case by case basis taking into consideration location, size, mass effect, prior hemorrhage and relative compression of adjacent structures.

FLUIDS AT RINGSIDE

It is a well-known fact that combat sport participation is physically demanding and requires athletes to perform at extremely high levels. To combat dehydration while competing, a very serious concern for combatants, the MAB and the Commission recognize that a combatant should have access to fluids at ringside. As not all fluids combat dehydration, the MAB and the Commission limit fluids at ringside only to authorized bottled water. Water must be in a sealed bottle and remain unopened until ringside.

The use of IV fluids from the time of the weigh until the event is prohibited other than for medical reasons, and that too, after the permission of the NYSAC medical committee.

GONAD PROTECTION:

Gonads are the primary reproductive organs in both male and female combatants. Because these sensitive areas can sustain serious blunt trauma during the course of a bout, the MAB and the Commission require all combatants to wear appropriate gonad protection while competing.

HEAD INJURIES:

One of the most traumatic injuries a combatant can sustain in the ring or the octagon is a head injury. To prevent serious injuries to combatants, the MAB and the Commission have established the following testing protocols and procedures for combatants fighting in New York:

- Combatants in high risk categories may be required to undergo additional advanced neuro-imaging;
- Combatants who have sustained serious traumatic brain injuries are not eligible to compete;
- Combatants fighting in New York must take an acceptable MRI scan demonstrating the absence of a head injury;
- Any combatant rendered unconscious or suffering head trauma as determined by the attending physician shall be immediately examined by the attending commission physician and shall be required to undergo neurological and neuropsychological examinations by a neurologist including but not limited to a computed tomography or medically equivalent procedure.

HEARING IMPAIRED COMBATANTS:

During a combat sports event there are often numerous instances wherein an auditory signal is critical to the proper control of a bout. These include, but may not be limited to: signaling when a round is nearing the end, when a round or bout has concluded and when the referee or another Commission official is providing instructions. For these reasons, partially hearing impaired combatants may compete on an individual basis subject to appropriate audiological testing; combatants who are totally impaired are not permitted to compete.

MEDICAL SUSPENSIONS AND PROHIBITIONS:

From time to time it is necessary for the Commission to issue medical suspensions so that combatants remain healthy and can compete in the future. While many suspensions occur at a fight based on individual circumstances there are certain cases wherein a suspension is mandatory. While not exhaustive, the following suspensions will be issued by the Commission as is needed and as appropriate:

- Presence of a banned substance (see, banned substance and urine testing sections of this Manual).
- All combatants after a fight get a mandatory administrative suspension for 7 days. This is done to safeguard the health of combatants and ensure that they get time to recover physically after a fight.
- For KOs and TKOs due to head blows, combatants may get suspensions ranging from a minimum of 30 days to a maximum of 90 days or more at the discretion of the supervising ringside physician. The ringside physician shall also request clearance from a neurologist prior to return to competition.
- For other injuries such as lacerations, orthopedic and ophthalmological injuries, combatants may get suspensions ranging from a minimum of 30 days to a maximum of 90 days or more at the discretion of the supervising ringside physician. The ringside physician may also request medical clearance from different specialists such as primary care physician, ophthalmologist, orthopedic physician among others prior to a return to competition.
- All suspensions are to remain in effect until medically cleared by the Commission.

In addition to suspensions, there are also certain restrictions on combatants which prevent them from competing in New York. These additional restrictions include:

- Excessive weight loss – Combatants are not permitted to lose more than 1% of their body weight within 24 hours of a bout;
- Excessive rounds – Combatants are not permitted to compete within 7 days of their last professional bout.

NEPHRECTOMIES:

A nephrectomy is the surgical procedure of removing a kidney or section of a kidney. Combatants who have had nephrectomies may be permitted to compete on an individual basis subject to additional testing and clearance from the combatant's nephrologist.

NEUROLOGICAL DISORDERS:

Neurologic diseases are disorders of the brain, spinal cord and nerves throughout your body. According to the US National Library of Medicine and the National Institutes of Health there are over 600 different diagnosable neurological disorders. Because these disorders can affect a combatant's ability in the ring or cage the MAB and the Commission have determined that combatants with certain chronic neurological diseases are ineligible to compete. Determination of medical licensure in combatants with neurological disorders will be assessed on a case by case basis.

RINGSIDE PHYSICIANS:

For every combat sports event within the State, the Commission appoints a sufficient number of ringside physicians based, in part, on the number of matches during an event. All ringside doctors are approved by the MAB and their qualifications are reviewed annually. In addition, all ringside physicians are required to attend training seminars as specified and approved by the Commission after consultation with the MAB. All ringside physicians are expected to remain in CME compliance and hold a valid and unrestricted New York State medical license.

During a match the ringside physician has the authority to terminate any combat sports match or exhibition if, in the opinion of such physician any contestant has received severe punishment or is in danger of serious physical injury. In the event of any serious physical injury, the physician shall immediately render any emergency treatment necessary, recommend further treatment or hospitalization if required, and fully report the entire matter to the Commission within 24 hours and if necessary, subsequently thereafter. The physician may also require that the injured combatant and his manager remain in the ring or on the premises or report to a hospital after the contest for such period of time as such physician deems advisable.

VASCULAR MALFORMATIONS:

Vascular malformations are developmental abnormalities in the body's vascular system. These malformations can fall into several different types of sub-categories. While these malformations are relatively common some may cause hemorrhages, seizures and/or headaches. In addition, certain formations may increase the risk of inter-cranial hemorrhage following trauma. The MAB and the Commission have therefore determined that combatants with vascular malformations on their MRI scans are not eligible to compete.

VENOUS ANOMALIES:

Venous anomalies affect the normal variant of venous drainage in the body. Venous anomalies do not always affect the structural integrity of blood vessels. The MAB and the Commission have therefore determined that combatants with venous anomalies may be permitted to fight on a case by case basis after reviewing the combatant's entire medical file.

WEIGHT LOSS:

Combatants sometimes lose excessive weight to "pass the scale." Too much weight loss can be detrimental to that combatant's health. By rule, combatants are not permitted to lose more than 1% of their body weight within 24 hours of a bout.