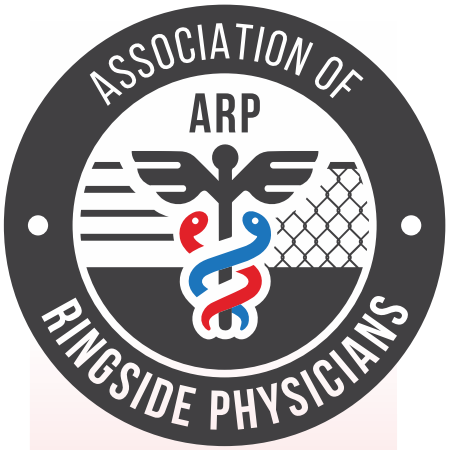

Association of Ringside Physicians

Journal of Combat Sports Medicine

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Editor-in-Chief, Editorial Board

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Susan Rees, Senior Managing Editor
Email: srees@reesgroupinc.com

Susan Rees, The Rees Group President and CEO, has over 30 years of association experience. Currently the Executive Director of the American Osteopathic Academy of Sports Medicine, American Society for Veterinary Clinical Pathology, and the Society for Psychophysiological Research, Susan spent 12 years with the Credit Union National Association (CUNA & Affiliates) as the director of their educational publishing division. Susan has an extensive background in association management, marketing and regulatory affairs, as well as print and electronic publishing. She is also an award-winning video producer, having produced educational videos and films for the financial training market. Susan spent two years with Forbes Inc., publisher of Forbes magazine as an international acquisitions editor in the book publishing division. At Forbes, Susan worked with businesses and associations to produce books, manuals, web sites and online learning tools for general retail sales distribution, or distribution through the business or association. Susan holds a Bachelor of Arts Degree in Communications and a Master of Science Degree in Education from the University of Wisconsin-Madison. She has been President and CEO of TRG since 2000.

Lisa M. Nelson, Senior Managing Editor
Email: lnelson@reesgroupinc.com

Lisa Nelson has worked in association management for over 35 years; the past 32 years with The Rees Group. She is currently the Managing Director of the Society for Clinical and Medical Hair Removal, but spent much the last 30 years working with association publications. She is the former Managing Editor for the *Journal of Cardiopulmonary Rehabilitation* and the *Annals of Behavioral Medicine*, and continues to edit several association newsletters.

Table of Contents

From the Editor's Desk

Dear Colleagues,

I trust this issue of the journal finds you all in good health. Combat sports are associated with a high risk of acute and chronic neurological injuries. As a result, the brain health of combatants is closely monitored and currently every combatant has to demonstrate brain fitness to fight at the time of initial licensure and periodically thereafter. Recent events have raised concern about the mental health of combat sports athletes. Many high profile combatants have recently found themselves on the wrong side of law. Some have even been incarcerated. There are numerous studies which shed light on the complex bidirectional relationship which exists between concussions and mental health disorders such as anxiety and depression.

Research into boxing and mental illness is scarce but the time has come to shed light on this complex relationship. In Volume 6 Issue 1 of the *ARP Journal of Combat Sports Medicine*, Sethi presents a commentary on mental health of combat sports athletes. Brain health and mental health are not exclusive of each other. Ringside physicians and everyone involved in combat sports should be concerned about the mental health of the two warriors in the ring. We cannot ignore this any longer.

Our two Senior Editorial Managers, Lisa Nelson and Susan Rees, continue to work tirelessly to improve the journal and make it a valuable resource for the combat sports community. The *ARP Journal of Combat Sports Medicine* is actively soliciting commentaries, case reports, case series, review articles and original studies related to the field of combat sports medicine. Please consider the journal for publication of your valuable work.

Sincerely,

Nitin K Sethi, MD, MBBS, FAAN
Editor-In Chief

COMMENTARY

Mental health of combat sport athletes—Should we be worried?

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New York, NY, USA
(Email: sethinitinmd@hotmail.com)

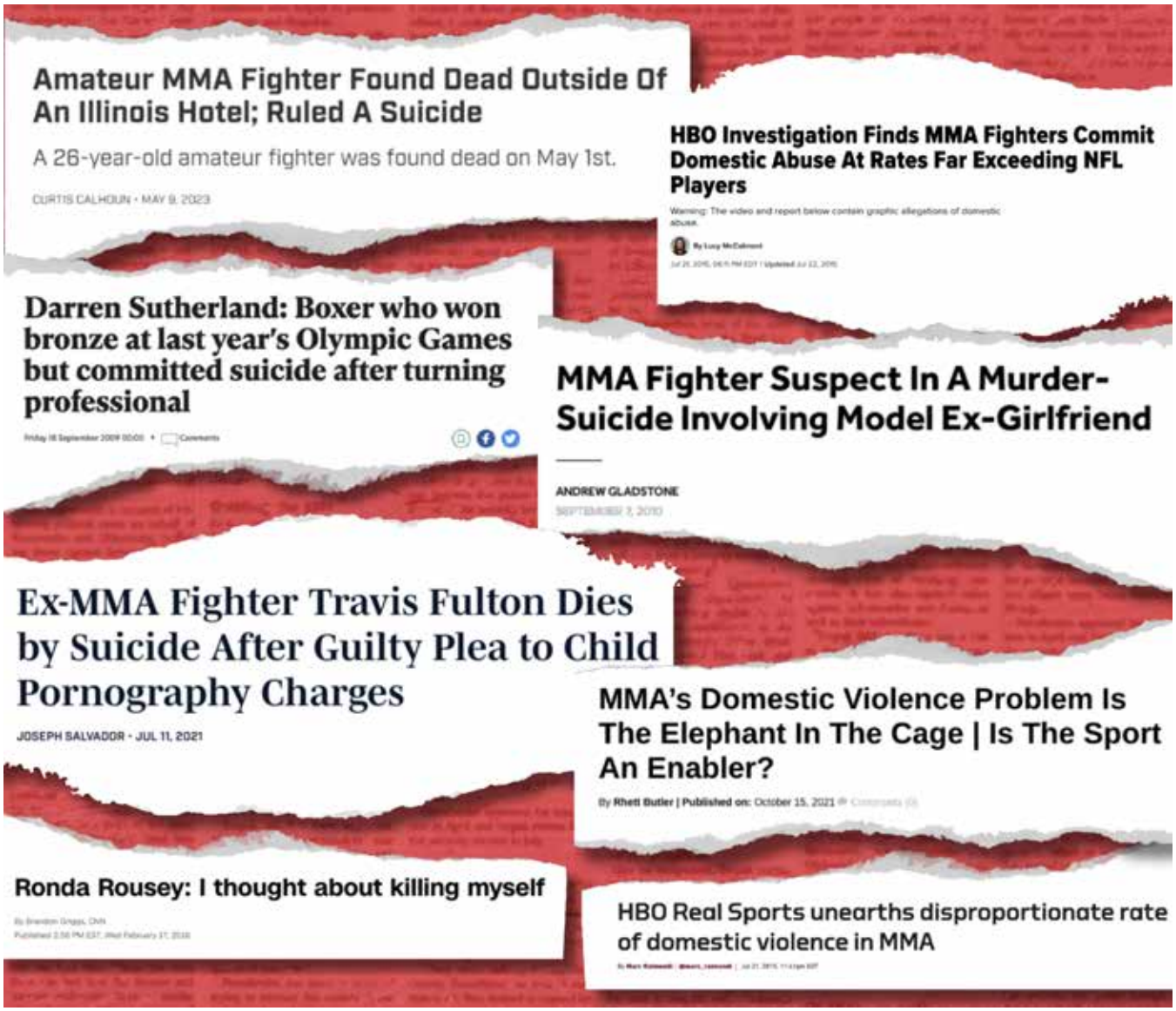
KEYWORDS: Boxing; mixed martial arts; combat sports; mental health; anxiety; depression

DISCLOSURES: The author serves as the Chief Medical Officer (CMO) of the New York State Athletic Commission (NYSAC). The views expressed by the author are his own and do not necessarily reflect the views of the institutions and organizations which the author serves.

Introduction

Profession boxing is a popular combat sport. In a sport where the goal is to win by causing a knockout, head impact exposures are common. Concussion is the most common acute traumatic brain injury (TBI) in boxing. Traumatic subdural hematoma is the most common cause of boxing related mortality. The burden of chronic neurological injuries is likely much higher but remains largely hidden coming to medical attention after the boxer's career is over. These chronic neurological injuries include chronic post traumatic headache, chronic post traumatic dizziness, post traumatic Parkinsonism, post traumatic cognitive, mood and behavioral disorders among others. While the burden of acute and chronic neurological injuries is high in combat sports, mental health of these combatants remains a neglected concern. Recent events have raised serious concern for the mental health of professional combat sports athletes.

A number of professional boxers/combatants have been in the news for domestic violence/battery charges, altercations with fans in public places and run in with law enforcement authorities. A few have been vocal on social media voicing homicidal and suicidal ideation. Their comments and actions both in and out of the ring have raised serious concerns about their mental health. Boxing is a combat sport and one of the main goal is to win by knocking out the other fighter. It is a brutal sport and to thrive in this sport, fighters need to display certain characteristics such as aggression and machoism. Some might argue that these very traits constitute fighter's mentality and are needed to excel in the sport. It is though unfortunate that at present a culture of toxic masculinity prevails in boxing. Leading up to fight, a boxer sometimes talks about killing his opponent in the ring ("I want a body on my account") or getting killed in the ring ("I want to be carried out on my shield"). When boxers talk like this, it is frequently chalked up to "trash talk" with the intention of psyching or getting under the skin of the opponent and also with the intention of selling the fight to fans. While this may indeed be the case, it should trigger a red flag and raise concern about the mental health of the fighter. Many boxers come from underprivileged sections of the society. Some have been raised in broken homes, exposed to gang violence in their neighborhood making them particularly vulnera-



ble to mental health disorders. They also lack the financial and medical resources, social and family support essential to combat these disorders.

Due to the high incidence of both acute and chronic neurological injuries boxers have to demonstrate to the satisfaction of the Commission doctors their brain fitness to fight. This is usually accomplished by imaging study such as MRI scan. Some Commissions require only a CT scan and a few require no imaging study to fight. If concern is raised about the brain health, a neurology consultation may also be requested. So while fighters have to demonstrate brain fitness to fight to the satisfaction of the Commission doctors, there is no prerequisite to demonstrate mental fitness to fight. The mental health of the boxer is largely ignored. There are no questions in the weigh-in and pre-fight questionnaire which assess the mental health of the combatant. At present boxers do not undergo any mandatory neuropsychological evaluation either at the time of the initial licensure or periodically thereafter. A boxer who enters and exits the ring should have a sound brain and mind. There is abundance of medical literature which highlights the link between TBI and mental health disorders such as anxiety and depression. It is thought that the two share a complex bidirectional relationship. Howlett et al. in their review found TBI to be associated with a number of psychiatric and neurobe-

Mental Health Crisis Resources

National Crisis Hotline	Dial 9-8-8
Veterans Crisis Hotline	Dial 9-8-8, then press 1
National Alliance on Mental Illness (NAMI)	1-800-950-6264 or text "HelpLine" to 62640
Substance Abuse and Mental Health Services Administation (SAMHSA) *Available in English and Spanish*	800-662-HELP (4357)
Early Serious Mental Illness Treatment Locator *(Searchable by state)*	https://www.samhsa.gov/esmi-treatment-locator
Crisis Text Line: United States *Available in English and Spanish*	Text HOME to 741741 Through WhatsApp Chat: https://connect.crisistextline.org/chat?utm_source=homepage
Crisis Text Line: United Kingdom	Text SHOUT to 85258
Crisis Text Line: Canada	Text CONNECT to 686868
Crisis Text Line: Ireland	Text HOME to 50505

Mental Health Apps (non-crisis)

(Available in the App Store or Google Play, unless otherwise noted.)

- BetterHelp
- Talkspace Therapy and Counseling
- OnlineTherapy.com
- Cerebral
- Calmerry
- Moodkit
- Better Stop Suicide (Android only)

havioral problems.[1] That the cognitive, affective, and behavioral sequelae of head injuries is often more disabling than residual motor deficits is often not recognized. Head injuries can cause mood and personality changes including impulsivity, irritability, affective instability, depression and apathy. Mild TBI such as concussion was once thought to be a largely benign short duration functional impairment of the brain with no structural or pathological changes. Structural and pathological changes have now been demonstrated in the concussed brain. In some patients post-concussion symptoms are highly resistant to treatment and persist for years. Concussion and post-concussion syndrome is now known to be associated with a host of affective symptoms, and with worsening or new onset of several psychiatric disorders including anxiety disorder, posttraumatic stress disorder and major depressive disorder. Boxing is a sport in which repetitive head impact exposures (HIEs) are common not just during the course of a bout but also during training (sparring). These repetitive HIEs may lead to a number of emotional and behavioral sequelae in these athletes such as impulsivity and anger issues. What is chalked up to trash talk with the intention of psyching or getting under the skin of the opponent and selling the fight to fans might actually be pathological behavior with underpinning in neuropsychiatry.

Our foremost goal should remain to protect the health and ensure safety of both combatants in the

ring. All boxers should undergo a neuropsychological evaluation at the time of the initial licensure and periodically thereafter on a case-by-case basis. Boxers who display symptoms of mental health disorders should be referred to mental health professionals for counseling and treatment. It should be realized that attempts to hype up a fight with comments such as "I want a body in my account" or "I want to be carried out on my shield" do not help the cause of boxing. In fact, it is comments like these which marginalize boxing to a niche sport leading to calls to ban boxing. It gives ammunition to people who want boxing to be banned likening it to human cockfighting and a blood sport. So when boxers make such comments it should be discouraged by all concerned parties.

In the end we want these fighters to have a healthy brain and a healthy mind. One cannot be exclusive of the other.

References

1. Howlett JR, Nelson LD, Stein MB. Mental Health Consequences of Traumatic Brain Injury. *Biol Psychiatry.* 2022;91:413-420.

Information and Submission Instructions for Authors

General and Formatting Guidelines:

All manuscripts must be in written in English, using UK or American English spellings. All materials must be submitted electronically to Nitin Sethi, Editor-in-Chief, at sethinitinmd@hotmail.com.

Submissions must:

- Be submitted in Microsoft Word format (.doc or .docx);
- Be double-spaced with 1" margins;
- Be typed in a commonly-used font (Times Roman, Helvetica, Arial, or similar), no smaller than 11 points.
- Include page numbers

Abbreviations and Acronyms

The use of abbreviations and acronyms, except for those that are quite common in combat sports medicine is strongly discouraged. Authors should be careful to ensure that idiosyncratic acronyms are not included in the submitted version, as this will improve readability for the editors and the reviewers. In addition, authors will be asked to remove idiosyncratic acronyms in any accepted materials.

Photos, Figures and Tables

ARP encourages the submission of photos, slides, graphs, charts, etc. that serve to complement or reinforce the information provided. At initial submission, all tables and figures may be embedded in the main document file. Materials accepted for publication must have the associated figures submitted individually and appended to the main document at final submission (see below for formatting instructions). Manuscript preparation should follow the guidelines provided in the AMA Manual of Style (10th edition or later). If a figure has been published previously, authors must cite the original source and submit written permission from the copyright holder to use it. This permission must be submitted at the time of manuscript submission.

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An article's title page must include the following information:

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- Names of all authors and institution where work was done (if applicable)
- Word count
- Key words
- Acknowledgment of grant support (if applicable)
- The contact email for the primary author.

References

References should be listed in the order in which they appear in the article and should be formatted using the *AMA Manual of Style.*

Examples:

Print Journal (1-6 authors)

Nathan JP, Grossman S. Professional reading habits of pharmacists attending 2 educational seminars in New York City. *J Pharm Practice.* 2012;25(6):600-605.

Print Journal (more than six authors)

Geller AC, Venna S, Prout M, et al. Should the skin cancer examination be taught in medical school? *Arch Dermatol.* 2002;138(9):1201-1203.

Electronic Journal Article

Without a Digital Object Identifier (DOI)

Aggleton JP. Understanding anterograde amnesia: disconnections and hidden lesions. *Q J Exp Psychol.* 2008;61(10):1441-1471. http://search.ebscohost.com/login.aspx?direct=true&db=p-bh&AN=34168185&site=ehost-live Accessed March 18, 2010.

With DOI:

Gage BF, Fihn SD, White RH. Management and dosing of warfarin therapy. *The American Journal of Medicine.* 2000;109(6):481-488. doi:10.1016/S0002-9343(00)00545-3.

Journal Article with No Named Author or Group Name:

Centers for Disease Control and Prevention (CDC). Licensure of a meningococcal conjugate vaccine (Menveo) and guidance for use--Advisory Committee on Immunization Practices (ACIP), 2010. *MMWR Morb Mortal Wkly Rep.* 2010;59(9):273.

Entire Book

Rantucci MJ. Pharmacists Talking With Patients: A Guide to Patient Counseling. 2nd ed. Philadelphia, PA: Lippincott Williams & Wilkins; 2007.

Book Chapter

Solensky R. Drug allergy: desensitization and treatment of reactions to antibiotics and aspirin. In: Lockey P, ed. Allergens and Allergen Immunotherapy. 3rd ed. New York, NY: Marcel Dekker; 2004:585-606.

Website

Canadian Press. Generic drugs to be bought in bulk by provinces. CBC News. http://www.cbc.ca/news/canada/saskatchewan/ story/2013/01/18/drug-costs-provinces.html. Published January 18, 2013. Updated January 18, 2013. Accessed February 4, 2013.

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Our suggested maximum article length is 30 typewritten pages (including references), and shorter manuscripts are welcome. It is also suggested that the introductory and discussion sections be limited to approximately 1500 words each. Please consult with the editorial office if your manuscript departs significantly from these guidelines.

Basic science and research articles should include the following subcategories, clearly labeled in the manuscript:

1. Abstract of no more than 300 words in length, which summarizes the main points of the article. Please include 3-5 keywords that facilitate search engine optimization (SEO) and that are consistent with the title, headers, and abstract.
2. Introduction
3. Body
4. Results
5. Discussion
6. Conclusion/Summary
7. References

Case Studies

Case studies should include four distinct and labeled sections:

1. Introduction
2. Statement of Purpose
3. Findings
4. Conclusion
5. References

Commentaries

Commentaries on recently published works may be considered for publication. As commentaries are generally based on insights and opinions of the author, no strict guidelines are required. Authors may consider:

1. Abstract (not to exceed 150 words)
2. Introduction
3. Discussion
4. Summary and Conclusion
5. References

If applicable, authors must provide grant funding sources, acknowledgments, a conflict of interest statement, and the name and email address for comments. Grant funding sources should be also provided at submission and will be reported in the published paper.

Figures. Authors should construct figures with notations and data points of sufficient size to permit legible reduction to one column of a two-column page. As a guide, no character should be smaller than 1 mm wide after reduction. Standard errors of the mean should be depicted whenever possible. Rules should be at least 1/2 point. Use of shading should be limited. There are two preferred formats for electronic figures, photographs, or other artwork that accompany the final manuscript: Encapsulated PostScript (EPS) and Portable Document Format (PDF).

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