SKIN INFECTIONS IN COMBAT SPORTS ATHLETES: POSITION STATEMENT OF THE ASSOCIATION OF RINGSIDE PHYSICIANS

AUTHORS: Kevin deWeber, MD, FAMSSM, FAAFP, FACSM; John Neidecker, DO, ATC, FAOASM; Dan Fosselman, MD, FAAFP, CAQSM; Thomas Lam, MD, FAAD

APPROVING DIRECTORS: Dr. John Neidecker (President), Dr. Louis Durkin (Vice President), Dr. Nitin Sethi (Secretary), Dr. Edward Amores (Treasurer), Dr. Don Muzzi (Past President), Dr. Kevin deWeber, Dr. Junaid Munshi, Dr. Warren Wang, Dr. Randa Bascharon, Dr. Guillem Gonzalez-Lomas, Dr. Damon Zavala, Dr. Andrea Hill, Dr. Carlo Guevara

June 14, 2023

The prevalence of infectious skin conditions is high in combat sports athletes, so primary and secondary prevention, early recognition of infection, and sports restriction during treatment are critically important to minimize the burden of suffering. Given the paucity of evidence-based guidelines, consensus return-to-sport guidelines published by the National Federation of High Schools (NFHS) and the National Collegiate Athletic Association (NCAA) should continue to be utilized by physicians, coaches, officials and athletes.

The ARP recommends exceptions to these guidelines as follows:

1. Consider medical clearance of elite and professional athletes, or non-elite athletes in high-stakes competitions, who have conditions with relatively low morbidity and high cure rate such as tinea corporis, common warts and molluscum contagiosum. These should be treated as soon as possible but should not necessarily preclude competition.

2. Strongly consider restriction from contact sports of athletes with primary or recurrent herpes gladiatorum until completion of 6 to 10 days of oral antiviral treatment, to reduce the risk of viral spread. In addition, clearance requires that athletes should have no systemic symptoms, no new lesions for 72 hours, and all lesions are crusted. Limited studies show that wrestlers with herpes gladiatorum continue to shed HSV for at least 6 days and up to 10 days during oral antiviral therapy. Therefore the 5-day (120-hour) oral therapy requirement by NFHS/NCAA is likely too short.

The ARP also recommends that coaches, athletes, and physicians strongly consider prophylaxis of elite combat sports teams (those who train with each other) with daily antiviral medication to reduce the risk of both new and recurrent HSV infections that can lead to lost training or cancelled competitions. Likewise, strongly consider prophylaxis of any team which has a history of tinea corporis or tinea capitis with periodic oral antifungal medication.

Table 1 provides a summary of treatment and return-to-sports guidelines for common skin infections in combat sports athletes.

For assistance on skin rash diagnosis and management, see websites:

- Medscape Dermatology - provides thorough info with workup and treatment advice.
- Interactive Dermatology Atlas – describe the rash to find diagnosis, plus lots of cases.

TABLE 1. Treatment and Return to Contact Sports Recommendations for Skin Infections in Combat Sports Athletes.

INFECTION	TREATMENT	RETURN-TO-SPORTS
Nonpurulent bacterial infections (not MRSA)	• Penicillin V 500mg PO QID 5-14 days • Amoxicillin 875mg PO BID 5-14 days • Clindamycin 450mg PO TID 5-14 days • Trimethoprim-sulfamethoxazole 1-2 DS Tab PO BID 5-14 days	• No new lesions for 48 hours • Completion of 72 hours of antibiotic therapy • No further drainage • No active infections
Nonpurulent MRSA infections	• TMP-SMX 1-2 DS Tabs BID • Clindamycin 450mg PO TID • Doxycycline 100mg PO BID • Minocycline 200mg PO x1 day, then 100mg PO BID	• No new lesions for 48 hours • Completion of 72 hours of antibiotic therapy • No further drainage • No active infections
Tinea corporis (tinea gladiatorum)	• Terbinafine 1% cream Topical BID 2-4 weeks • Ketoconazole 2% cream Topical QD 2-4 weeks • Clotrimazole 1% cream Topical QD 2-4 weeks • Fluconazole 150mg PO QD x 7 days • Itraconazole 100mg PO QD x 14 days • Terbinafine 250mg PO QD x 7 days	• Completion of 72 hours of antifungal therapy, or consider allowing participation with untreated lesions in elite athletes or those in high-stakes competitions • Lesions should be covered with reliable dressings
Tinea capitis/barbae	• Terbinafine 250mg PO QD 2-4 weeks • Ketoconazole 200mg PO QD 2-4 weeks • Itraconazole 200mg PO QD 2-4 weeks • Fluconazole 6mg/kg PO QD 3-6 weeks	• Completion of 2 weeks of systemic therapy, no drainage • Continued use of antifungal shampoo before practice until scalp lesions resolve
Herpes simplex virus (herpes labialis or herpes gladiatorum)	Primary infection • Acyclovir 400 mg PO TID x 7-10 days • Famciclovir 500 mg PO BID x 7-10 days • Valacyclovir 1 g PO TID x 7-10 days Recurrent infection • Acyclovir 400mg PO TID x 5 days • Famciclovir 750 mg PO bid x1 day • Valacyclovir 2 g PO BID x 1 day Suppression of infection • Valacyclovir 500mg-1000mg PO QD	• Free of systemic symptoms • No new lesions for 72 hours • Completion of 6-10 days of systemic antiviral therapy • Lesions surmounted by firm adherent crust
Molluscum contagiosum	• Physical destruction of lesions with sharp curette	• Consider allowing participation in untreated elite athletes or high-stakes competitions • Other athletes, after destruction of lesions • Treated lesions covered with gas-permeable membrane and tape
Verruca vulgaris	• Cryotherapy • Salicylic acid • Imiquimod	• Lesion should be covered • Consider allowing participation in untreated elite athletes or high-stakes competitions

Development of this Position Statement

The ARP is an international, non-profit organization dedicated to the health and safety of athletes in combat sports. This position statement expresses a collaborative effort among the authors, subject matter experts, ARP Board of Directors, and Emeritus Board. An extensive literature search including, but not restricted to MEDLINE, Cochrane Review, and non-indexed peer-reviewed scientific articles published in online medical journals was performed using search terms: boxing, MMA, combat sports, older athlete, high-risk combatant, medical clearance, physiological changes, neuroimaging, cardiovascular risk assessment, orthopedic injury. Though studies evaluating older athletes in combat sports are lacking, common sense principles, extrapolation from related research, and decades of combat sports medical experience form the foundation for these rational recommendations.

The entire document is under editorial review for publication in a peer-reviewed medical journal and is therefore not available for review currently due to copyright restrictions.