



Dermatologic Issues in the Active and Athletic Patient

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Disclosures

- I have no relationships to disclose.

Learning Objectives

At the end of this session, participants will be able to:

1

Recognize

Identify the most common infectious, mechanical, and environmental skin conditions in athletes across different skin tones

2

Treat

Apply evidence-based treatment strategies for sports dermatoses encountered in primary care settings

3

Clear

Apply return-to-sport (RTS) guidelines for contagious skin infections per NCAA and NFHS standards

4

Counsel

Advise athletes on skin cancer prevention and sun protection across all skin types

Three Categories of Sports Dermatoses

Sports-related skin conditions fall into three broad clinical categories. Infections cause the most disruption to individual athletes and teams and will receive the most attention in this presentation.

1. Infectious

Fungal · Bacterial · Viral · Parasitic

2. Mechanical / Traumatic

Blisters · Calluses · Subungual hemorrhage · Acne mechanica

3. Environmental / Inflammatory

UV damage · Contact dermatitis · Urticaria · Thermal injury



SECTION 1 OF 3

Infectious Dermatoses

Fungal · Bacterial · Viral · Parasitic

Tinea Corporis Gladiatorum



Figure: Annular scaly plaque of tinea corporis. Source: Wikimedia Commons (CC BYSA 3.0).

Presentation & Diagnosis

Annular, erythematous, scaly plaques with raised borders and central clearing. Spread via skin-to-skin contact, mat abrasions, and moisture – most common in wrestlers. Confirm with: KOH prep (septate branching hyphae) + fungal culture.

Treatment

Topical: ketoconazole, clotrimazole, or terbinafine BID \times 2–4 weeks. Systemic (extensive): terbinafine 250 mg/day \times 2 weeks. ⚠️ Avoid topical corticosteroids – they worsen tinea.

Return to Sport

Minimum 72 hours of topical antifungal therapy. Tinea capitis: 14 days systemic; cannot be covered \rightarrow disqualified.

Tinea Pedis, Cruris & Versicolor

Tinea Pedis ("Athlete's Foot")

Interdigital maceration, moccasin-type scaling, or vesiculobullous presentation. **Treatment:** Topical antifungals × 4 weeks. **Prevention:** antifungal powder, moisture-wicking socks, sandals in shared showers.

Tinea Cruris ("Jock Itch")

Sharply demarcated inguinal plaques; scrotum typically spared. If scrotum involved → consider candidiasis. Cream/powder formulations preferred over ointment in intertriginous areas.

Tinea Versicolor (*Malassezia*)

Hypo- or hyperpigmented patches on trunk – hypopigmentation is especially prominent and clinically significant on darker skin. **Treatment:** Selenium sulfide 2.5% lotion or ketoconazole 2% shampoo applied to affected areas.

☐ Treat tinea pedis, cruris, and corporis simultaneously to prevent treatment failure. Apply socks before undergarments to prevent autoinoculation from feet to groin.



CBC PHIL



FUNGAL INFECTIONS

Pityrosporum (*Malassezia*) Folliculitis

Who & Looks Like

- Young adults (~24 yrs), male predominance
- Athletes in hot/humid climates
- >75% follow antibiotic use
- Pruritic (71%), monomorphic 1–2 mm papules/pustules
- Chest, back, upper arms. **NO comedones.**

vs. Acne / Diagnose

- Itchy. Monomorphic. Worsens with antibiotics.
- No comedones (key differentiator)
- KOH prep: "**spaghetti & meatballs**"
- PAS stain on biopsy

Treatment

Topical (First-Line):

- Ketoconazole 2% shampoo × 2–3 months
- Selenium sulfide 2.5% lotion × 2 weeks

Oral (Refractory):

- Itraconazole 200 mg/day × 2–4 weeks
- ⚠️ Terbinafine **NOT** effective



Clinical Pearl: Itchy + monomorphic trunk "acne" worsening on antibiotics = Pityrosporum folliculitis. **Stop antibiotics. Start antifungals.**



BACTERIAL INFECTIONS

Impetigo

Impetigo (*S. aureus* / Group A Strep)

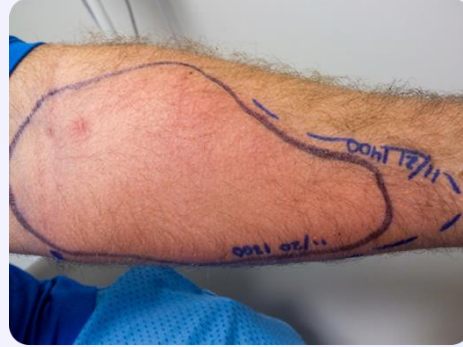
- Honey-colored crusted plaques or bullous lesions
- Localized: topical mupirocin TID × 10 days
- Outbreaks/complicated: systemic antibiotics guided by culture



Return to Sport

72 hours antibiotics · No new lesions × 48 h · No moist or draining lesions

Figure: Non-bullous impetigo on perioral skin. Source: CDC (Public Domain).



BACTERIAL INFECTIONS

Cellulitis

IDSA Severity-Stratified Treatment Approach

Mild

Oral agents active against streptococci: cephalexin, dicloxacillin, penicillin VK, amoxicillin, amoxicillin-clavulanate, or clindamycin (penicillin allergy)

Severe

Vancomycin or antimicrobial effective against both MRSA and streptococci

Moderate

Systemic antibiotics indicated; consider coverage against MSSA

Severely Compromised

Broad-spectrum: vancomycin + piperacillin-tazobactam or imipenem/meropenem

Additional Recommendations

- Duration: 5-day course; extend if no improvement
- Elevation of affected area
- Treat predisposing factors (edema, underlying cutaneous disorders)

Cultures

- NOT routinely recommended for typical cellulitis
- Obtain in: malignancy, severe systemic features, immersion injuries, animal bites, neutropenia, or severe cell-mediated immunodeficiency



BACTERIAL INFECTIONS

Community-Acquired MRSA

- Common in wrestling, football, rugby
- Presents as furuncles, abscesses, or cellulitis – often reported as "spider bite"
- Isolated abscess <5 cm: I&D alone may suffice
- Larger/multiple: oral TMP-SMX, doxycycline, or clindamycin × 7–10 days
- Systemic involvement \rightarrow emergent referral, IV vancomycin

⚠ Return to Sport

72 hours antibiotics · No new lesions × 48 h · No moist or draining lesions

⚠ Antibiotic Cautions

Fluoroquinolones \rightarrow tendon rupture risk, QTc prolongation. Tetracyclines \rightarrow photosensitivity.

HIGH YIELD

Herpes Gladiatorum

#1 skin infection in NCAA wrestlers – accounting for 40.5% of all skin infections in this population.

Presentation

- HSV-1 → grouped vesicles on erythematous base
- Face (70%), head, neck, upper body
- Prodrome: burning/tingling 1–2 days before vesicles
- Primary infection: fever, malaise, lymphadenopathy

Diagnosis

- Viral culture (gold standard)
- Tzanck prep
- PCR



HIGH YIELD

Herpes Gladiatorum

Treatment & Return to Sport

Treatment

- Oral acyclovir, valacyclovir, or famciclovir
- Most effective during prodrome
- Topical antivirals alone are NOT effective

Return to Sport

- NCAA: 5 days oral antiviral · No new lesions × 72 h · All lesions dry/crusted · No systemic symptoms
- NFHS: Primary = 10 days | Recurrent = 5 days
- Coverage alone is NEVER acceptable

- ✔ Prophylaxis: Valacyclovir 1 g daily → 84.7% decrease in outbreak probability. A 10-year U of Minnesota study showed 89.5% reduction at a 28-day wrestling camp. Consider season-long prophylaxis for any wrestler with a history of herpes gladiatorum.

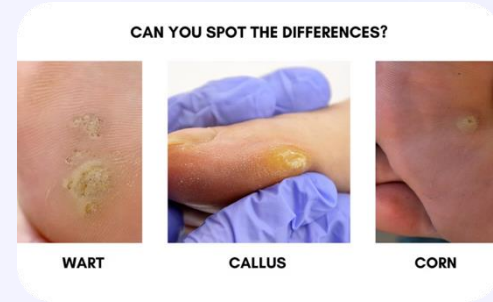
Molluscum Contagiosum & Verruca Vulgaris



Molluscum Contagiosum (Poxvirus)

1–6 mm skin-colored umbilicated papules. Self-limited but removal required for RTS clearance.

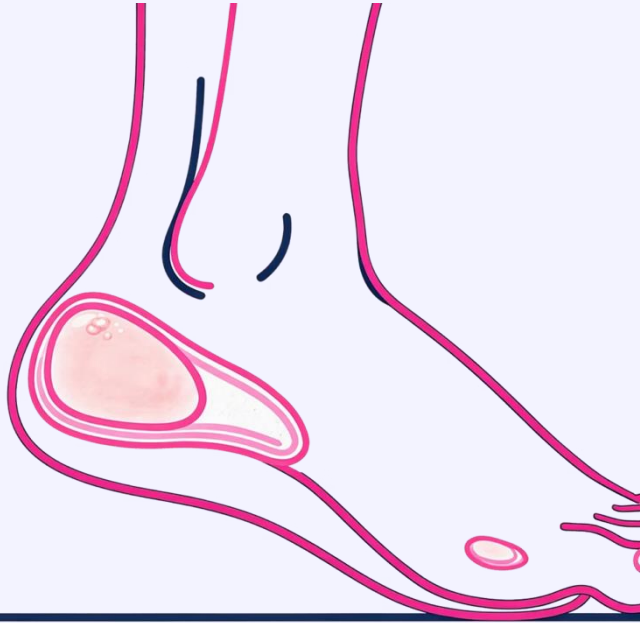
- Treatment: curettage, cryotherapy, cantharidin, imiquimod
- RTS: lesions must be removed; localized lesions → gas-permeable dressing



Verruca Vulgaris / Common Warts (HPV)

Firm, rough papules with punctate black dots (thrombosed capillaries).

- **Key pearl:** Warts *interrupt* skin lines; calluses *accentuate* them
- Treatment: cryotherapy, salicylic acid, curettage
- Multiple warts → must be "adequately covered" for RTS



SECTION 2 OF 3

Mechanical & Traumatic Dermatoses

Blisters · Acne Mechanica · Subungual Hemorrhage · Talon Noir

Friction Blisters & Acne Mechanica

Friction Blisters

Shearing forces + moisture → epidermal separation. Most common on feet in runners and field sport athletes.

- **Prevention:** moisture-wicking socks, properly fitting shoes, 20% aluminum chloride antiperspirant to soles
- Small blisters (<1 cm): leave intact
- Large blisters: aseptic drainage, leave roof intact as biological dressing
- **RTS: Immediate** after decompression with appropriate dressing

Acne Mechanica

Heat + pressure + occlusion + friction → follicular papules/pustules/nodules under equipment pads.

- Distribution mirrors gear: helmets, chin straps, shoulder pads
- Differential: allergic contact dermatitis (rubber chemicals: thiurams, mercaptobenzothiazole)
- Treatment: cotton undershirts, benzoyl peroxide washes, topical retinoids, systemic antibiotics for widespread disease
- ⚠️ **Isotretinoin:** associated with low back pain, myalgia, arthralgia, tendonitis and lower bone density

□ Any "acne" that corresponds exactly to equipment padding distribution should raise contact dermatitis on the differential. Patch testing may be indicated.

Runner's Toe vs. Subungual Melanoma



Figure 2. Subungual hematomas involving the second, third, and fourth toes.

Subungual Hemorrhage

Image: The Dermatologist
<https://www.hmpglobal.com/resources/insights/articles/skin-findrings-runners-more-just-black-and-blue-toes>



Subungual Melanoma



Racial (ethnic) melanonychia

Runner's Toe (Subungual Hematoma)

- History of trauma or repetitive impact (running, tennis, skiing); often bilateral or affects multiple toes
- Pigment is homogeneous, migrates distally with nail growth, resolves over weeks to months
- Paring test **POSITIVE** – superficial scraping removes the pigment
- No Hutchinson sign (no pigment extension onto nail fold)

⚠ Subungual Melanoma — Red Flags

- Insidious onset without clear trauma; single digit (usually thumb or hallux)
- Pigment is irregular, widening, or persistent – does **NOT** migrate with nail growth
- Hutchinson sign **PRESENT** – pigment extends onto proximal or lateral nail fold (seen in ~83% of cases)
- Paring test **NEGATIVE** – pigment cannot be scraped away
- Nail dystrophy, ulceration, or destruction in advanced cases

ⓧ "When to Biopsy" – Any ONE of the following warrants referral:

- Unilateral, single-digit involvement
- Band width ≥ 3 mm or progressively widening
- Periungual pigment extension (Hutchinson sign)
- Failure to resolve or migrate distally over 3–6 months
- Patient age >50 or high-risk ethnicity (African American, Asian, Native American)

Talon Noir vs. Acral Melanoma



Talon Noir (Black Heel)



Plantar Melanoma

Talon Noir (Black Heel)

- Caused by shearing trauma (basketball, tennis, running)
- Punctate, stippled dark dots on posterior heel
- Often bilateral in young athletes
- Paring test **POSITIVE** – pigment scrapes away with a blade
- Dermoscopy: red-black homogeneous pigment
- Resolves spontaneously; no treatment needed

⚠️ Acral Melanoma — Red Flags

- Insidious onset without clear trauma; unilateral
- Irregular borders, asymmetric pigmentation, multiple colors
- Paring test **NEGATIVE** – pigment cannot be removed
- Dermoscopy: parallel ridge pattern (86% sensitivity, 99% specificity)
- Enlarging, persistent, does not resolve



"When to Biopsy" – Biopsy any plantar pigmented lesion that is:

- Acquired and >7 mm
- In a patient >50
- Shows parallel ridge pattern on dermoscopy
- Has asymmetric or evolving pigmentation
- Fails to resolve with paring test

SECTION 3 OF 3

Environmental & Inflammatory Dermatoses

UV Damage · Contact Dermatitis · Aquatic Conditions · Urticaria · Thermal Injury



Sun Protection & Skin Cancer Risk in Athletes

Athletes have **increased UV exposure during peak hours**, creating a higher lifetime risk of melanoma and non-melanoma skin cancers. Youth sun damage has long-term consequences that compound over a career.



Sunscreen

Broad-spectrum (UVA + UVB), **SPF ≥30**, water/sweat-resistant. Reapply every 2 hours and after swimming or sweating.



Avoid Tanning

Counsel against indoor tanning, especially common among bodybuilders and cheerleaders. All skin tones are at risk – darker skin types often present with more advanced disease at diagnosis.



Protective Gear

Wide-brimmed hats, UV-protective sunglasses, and sun-protective clothing. Minimize outdoor activity during peak UV hours (10 AM – 2 PM).



Team Culture

Coaches play a critical role in establishing team-wide sun safety habits. Integrate sunscreen into pre-practice routines.

Contact Dermatitis & Aquatic Conditions

Contact Dermatitis in Athletes

Eczematous rash in exact distribution of equipment contact – the anatomic pattern is the diagnostic clue.

- Swimming goggles → rubber accelerators (mercaptobenzothiazole)
- Scuba wetsuits → thiourea derivatives
- Soccer shin guards → urea formaldehyde

Diagnosis: Patch testing | **Treatment:** Allergen avoidance + topical/systemic corticosteroids

Hot-Tub Folliculitis (*Pseudomonas aeruginosa*)

Follicular papules/pustules on submerged skin
12–48 h after exposure to contaminated water.

- Self-limited (7–10 days)
- Systemic symptoms: ciprofloxacin 500 mg BID × 7 days
- Prevention: adequate pool chlorination and pH control

Swimmer's Xerosis

Dilution of protective sebum → dry, scaly, itchy skin. Prevention: quick lukewarm rinse post-swim; oil-based emollient applied immediately after.



HIGH YIELD

Exercise-Induced Urticaria & Anaphylaxis

Two distinct conditions – do not confuse them. Accurate distinction is critical for patient safety and counseling.

Feature	Cholinergic Urticaria	Exercise-Induced Anaphylaxis (EIAn)
Wheals	Small, punctate (1–3 mm)	Large wheals
Trigger	Any rise in core temp (incl. hot bath)	Exercise only (not passive heating)
Risk	Rarely life-threatening	Can progress to full anaphylaxis



⚠️ **Food-Dependent EIAn:** Wheat (omega-5-gliadin) is the most common culprit. Neither food nor exercise alone triggers the reaction – the **combination** is required. NSAIDs are a common cofactor.

Management Essentials

- Avoid eating ≥ 4 hours before exercise
- **Always carry injectable epinephrine**
- Exercise with a partner who can administer epi
- Wear medical identification
- Refer to allergy/immunology for confirmatory testing

Thermal Injury & Other Conditions



Erythema Ab Igne

- Repeated heating pad application → red-brown reticulated plaque
- Rare carcinogenic potential (SCC reported)
- Treatment: discontinue heat; monitor for suspicious growths



Frostbite/Frostnip

- Cold-weather athletes and ice pack application
- Rapid rewarming with warm water bath; do NOT rub skin



Striae Distensae

- Rapid muscle growth (weightlifting, bodybuilding) → stretch marks
- Consider anabolic steroid use if accompanied by new acne, hair loss, personality changes
- Treatment limited: topical tretinoin, laser therapy



Jogger's Nipples

- Repetitive friction of coarse fabric → painful, eroded nipples
- Prevention: specialized sports bra, nylon jersey, petrolatum, tape coverings

Return-to-Sport Summary Table

Rules vary between NCAA, NFHS, and state athletic associations – always verify the governing body's specific current requirements. **Covering an active infection is NEVER an acceptable substitute for treatment.**

Condition	Minimum Rx Before RTS	Additional Requirements
Tinea (skin)	72 h topical antifungal	Lesions coverable; KOH to assess activity
Tinea capitis	14 days systemic antifungal	Cannot be covered → disqualified until treated
Impetigo / MRSA	72 h antibiotics	No new lesions × 48 h; no moist/draining lesions
Herpes – primary (NFHS)	10 days oral antiviral	No new lesions × 72 h; all dry/crusted
Herpes – recurrent (NFHS)	5 days oral antiviral	No new lesions × 72 h; all dry/crusted
Herpes (NCAA)	5 days oral antiviral	No new lesions × 72 h; dry/crusted; no systemic sx
Molluscum	Curettage/removal	Localized → gas-permeable dressing + wrap
Warts	Curettage if solitary	Multiple → must be "adequately covered"
Scabies	Negative scabies prep	Treated with appropriate scabicide
Lice	Treated with pediculicide	Re-examined for completeness of response

Test Your Knowledge

4 Quick Cases — Interactive Review

Apply clinical reasoning to sports dermatology scenarios encountered in real-world primary care and sports medicine practice.



1

Case 1

The Wrestler with a Rash

2

Case 2

The Football Player with "Acne"

3

Case 3

The Runner with a Black Toenail

4

Case 4

The Jogger with Hives

CASE 1

The Wrestler with a Rash

- i** A 19-year-old college wrestler presents 8 days after a tournament with **clustered vesicles on an erythematous base on his right lateral neck**. He reports a 1-day prodrome of burning and tingling. He also has low-grade fever and tender right cervical lymphadenopathy.

What is the most likely diagnosis and minimum treatment duration before he can return to competition under NCAA rules?

A

Impetigo – 72 hours of antibiotics

B

Herpes gladiatorum – 120 hours (5 days) of oral antiviral therapy

C

Tinea corporis gladiatorum – 72 hours of topical antifungal

D

Contact dermatitis – topical corticosteroids until resolved



The Wrestler with a Rash

✔ **Answer: B – Herpes Gladiatorum – 120 hours (5 days) of oral antiviral therapy**

Why B?

- Classic HSV: grouped vesicles, prodromal tingling, systemic symptoms in primary infection
- Abraded skin in wrestlers can mask classic vesicular morphology – always consider HSV for facial/neck rash in a wrestler
- NCAA: 5 days systemic antiviral · No new blisters × 72 h · All lesions dry/crusted · Coverage NEVER acceptable
- NFHS primary: 10 days (longer than NCAA)

Pearl

Consider season-long valacyclovir 1 g daily prophylaxis for any wrestler with confirmed history of herpes gladiatorum. A 10-year U of Minnesota study showed 89.5% reduction in outbreaks at a 28-day wrestling camp.

The Football Player with "Acne"

i A 17-year-old football player has a 3-month history of **pruritic, monomorphic papules and pustules on his upper back, chest, and shoulders**. He was treated with oral doxycycline × 6 weeks with no improvement. His face is relatively clear. The rash worsens with sweating during practice.

What is the most likely diagnosis?

A

Acne vulgaris

B

Pityrosporum (Malassezia) folliculitis

C

Bacterial folliculitis

D

Tinea corporis



The Football Player with "Acne"

✔️ Answer: B – Pityrosporum (Malassezia) Folliculitis

Red Flags That Distinguish from Acne Vulgaris

- Monomorphic papules/pustules – NO comedones or cysts
- Trunk and shoulder predominance with facial sparing
- Pruritus present in ~71% of cases; uncommon in acne
- Fails antibiotics – antibiotics may worsen by disrupting normal flora (~40% had prior unsuccessful antibiotic treatment)

Diagnosis & Treatment

- KOH prep → "spaghetti and meatballs" (yeast clusters)
- Oral itraconazole 200 mg/day × 2–4 weeks
- Ketoconazole 2% shampoo as body wash for maintenance
- ⚠️ Terbinafine NOT effective (Malassezia is not a dermatophyte)

CASE 3

THE RUNNER WITH A BLACK TOENAIL

- i A 35-year-old marathon runner has a **painless blue-black discoloration under the nail of her right great toe** noticed after a race 3 weeks ago. The discoloration is under the distal nail plate and does not extend to the proximal nail fold. No personal or family history of melanoma.



What clinical feature would most concern you for subungual melanoma?

A

Discoloration limited to the distal nail plate

B

Bilateral involvement of multiple toenails

C

Pigmentation extending to the proximal or lateral nail fold (Hutchinson sign)

D

History of recent long-distance running

The Runner with a Black Toenail

✔ Answer: C – Pigmentation extending to the proximal or lateral nail fold (Hutchinson sign)

Why C? — ABCDEF Rule for Subungual Melanoma

A

Age: 5th–7th decade; higher risk in African American, Asian, Native American populations

B

Band: Brown-black band >3 mm with variegated borders

C

Change: Change in band (or lack of change despite treatment)

D

Digit: Thumb or great toe most common

E

Extension: Hutchinson sign – pigment to nail fold (~75–83% of subungual melanomas)

F

Family Hx: Personal or family history of melanoma

Talon Noir vs. Melanoma

Paring with scalpel REMOVES the pigment in talon noir – melanoma pigment does NOT pare away.

When in doubt → biopsy.

The Jogger with Hives

i A 28-year-old woman develops **large urticarial wheals, throat tightness, lightheadedness, and abdominal cramping** 20 minutes into a jog. She ate pasta 2 hours before running. She self-administered epinephrine and symptoms resolved. Similar but milder episode 3 months ago after running post-lunch.



What is the most likely diagnosis and the single most important counseling point?

A

Cholinergic urticaria – avoid hot showers before exercise

B

Food-dependent exercise-induced anaphylaxis – avoid eating ≥ 4 hours before exercise and carry injectable epinephrine

C

Exercise-induced urticaria – take antihistamines before exercise

D

Allergic reaction to pasta – eliminate wheat from diet

The Jogger with Hives

- ✔ Answer: B – Food-Dependent Exercise-Induced Anaphylaxis (FDEIA) – avoid eating ≥ 4 hours before exercise and carry injectable epinephrine

Key Distinctions

- Cholinergic urticaria: small punctate wheals (1–3 mm); triggered by any rise in core temp including passive heating; rarely fatal
- EIA: larger wheals; NOT triggered by passive heating; can progress to cardiovascular collapse
- Food-dependent EIA: wheat (omega-5-gliadin) most common; NSAIDs are cofactors; neither food nor exercise alone triggers it

Mandatory Counseling

- Must carry epinephrine auto-injector at all times
- Exercise with a partner who can administer epi
- Wear medical ID at all times
- Avoid eating ≥ 4 hours before exercise
- Refer to allergy/immunology for confirmatory testing

Prevention Strategies



Personal Hygiene

- Shower with soap and warm water immediately after every practice/competition
- Never share towels, razors, equipment, or personal items
- Discourage body shaving (creates portals of entry)



Environmental Controls

- Regular disinfection of mats and equipment with EPA-registered disinfectants
- Launder uniforms and towels after every use



Surveillance

- Daily skin self-checks by athletes
- Pre-competition skin examinations by medical staff
- Immediate reporting of new or changing lesions



Prophylaxis

- Valacyclovir 1 g daily → wrestlers with HG history or during outbreaks
- Antifungal foot powder → tinea pedis prevention
- SPF ≥ 30 broad-spectrum sunscreen → all outdoor athletes

Summary: Key Clinical Pearls

- 1 Herpes Gladiatorum** — #1 skin infection in NCAA wrestlers
Prophylactic valacyclovir 1 g daily is highly effective – **84.7% reduction** in outbreak probability. Coverage alone is never acceptable for RTS clearance.
- 2 MRSA** — Culture before treating
Increasingly common in contact sport athletes. Avoid fluoroquinolones (tendon rupture, QTc risk). Always obtain culture and sensitivity to guide antibiotic selection.
- 3 Talon Noir vs. Melanoma** — Paring test at the bedside
Paring with a scalpel removes benign hemorrhagic pigment; melanoma does NOT pare away. Hutchinson sign → biopsy without delay.
- 4 Pityrosporum Folliculitis** — Not all truncal "acne" is acne
Trunk predominance with facial sparing, pruritus, and antibiotic failure are the key differentiating clues. KOH prep confirms the diagnosis.
- 5 Sun Protection** — Underutilized in athletes
Counsel at every visit. All skin tones are at risk; darker skin types often present with more advanced disease. Coaches drive team-wide culture change.
- 6 Know Your Governing Body** — NCAA vs. NFHS vs. state rules
RTS requirements differ between organizations. Verify current rules annually. Covering an active infection is never an acceptable substitute for treatment.

Questions & Discussion

Thank you for your attention

Contact:

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