# Common Skin Infections and Conditions in Athletic Populations

## GLATA 2019

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## Disclosures

- Nothing to disclose
- Nor conflicts of interest

# Introduction

- Background
  - Wilmington College
  - Indiana University
  - Heidelberg University
    - 16 years working with NCAA DIII Wrestling



# **Objectives**

- Examine the common causes of skin infections and conditions.
- Examine and present the most common signs and symptoms of skin infections and conditions.
- Examine and present the treatments of common skin infections and conditions.
- Discuss return to play decisions, as they pertain to treating and managing skin infections and conditions.

# **Sport/Rules Overview**

• What sport do you primarily think of when someone says skin infection?

 RTP criteria for this presentation obtained from the NCAA Sport Medicine Handbook & the NCAA Wrestling Rule Book

Check high school rule books for differences

## **Prevention & Education**

- Educating the athletes, coaches & parents is key to prevention
  - Personal Hygiene
  - Equipment Hygiene
  - Preventative measures
    - Skin checks, prophylactic medications
  - NATA Position Statement

- virtually all of the topics today are preventable

## **Skin Diseases/Conditions**

- Bacterial
  - Viral
  - Fungal
  - Other

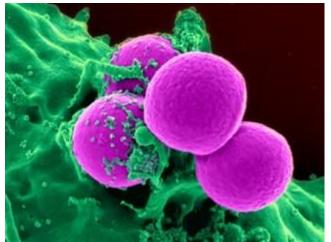
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## **Bacterial Infections**

- Staphylococcus
- Folliculitis
- Impetigo
- Cellulitis
- Furuncles/Carbuncles

# **Staph Infections**

- MRSA
  - (Methicillin-resistant Staphylococcus aureus)
  - caused by a type of staph bacteria which has become resistant to many of the antibiotics used to treat ordinary staph infections



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# MRSA

- Signs/Symptoms
  - Anywhere on the body
  - Starts as swollen, painful red bump resembling pimples or spider bites
  - Warm to the touch
  - Full of pus or other drainage
  - Maybe accompanied by a fever
  - Generally a singular spot

## MRSA

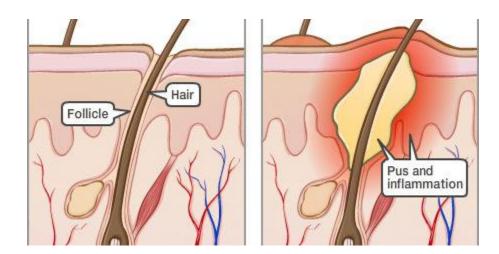
- Highly contagious and can be life threatening
- Can spread rapidly internally and externally



## MRSA

- Treatment
  - Referral
  - Culture
  - Removal from all activities
- Return to Play
  - Athlete must have been without any new skin lesion for 48 hours before competition
  - Athlete must have completed 72 hours of antibiotic therapy and have no moist, exudative or draining lesions at competition time
  - Active lesions shall not be covered to allow participation

- Inflammation of hair follicles
- Bacterial or fungal
- Shaved or taped areas



- Appearance
  - small red bumps or white-headed pimples around hair follicles
  - The infection can spread and turn into nonhealing, crusty sores
  - Usually clustered



- Communicability
  - Can be contagious
  - Not life-threatening
- Treatment
  - Antibiotic creams or pills to control infection
  - Oral antibiotics not routinely used
  - Creams, shampoos or pills to fight fungal infections
  - Laser Hair Removal

- Return to Play
  - Athlete must have been without any new skin lesion for 48 hours before the meet or tournament.
  - Athlete must have completed 72 hours of antibiotic therapy and have no moist, exudative or draining lesions at competition time
  - Active purulent lesions shall not be covered to allow participation.

# Impetigo

• Contagious, superficial bacterial infection

- Classified as bullous or non-bullous
  - Bullous
    - superficial blisters (bullae) which rupture easily
  - Non-bullous
    - most common form

## Impetigo

- Signs & Symptoms
  - red sores which rapidly increase in size
  - Ooze for a few days and then form a <u>yellowish</u>-<u>brown crust</u>
  - Usually occur around the nose and mouth
    - can be spread to other areas of the body
  - Itching and soreness are generally mild



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# Impetigo

### • Treatment

- Prescription-strength antibiotic ointment mupirocin (Bactroban)
  - Non-prescription topical antibiotic ointments (Neosporin) generally are not effective
- Return to Play
  - Athlete must have been without any new skin lesion for 48 hours before competition
  - Athlete must have completed 72 hours of antibiotic therapy and have no moist, exudative or draining lesions at competition time
  - Active purulent lesions shall not be covered to allow participation

# Cellulitis

- Caused by bacteria which live on the skin's surface
  - Infection of the deeper layers of the skin, commonly
- Potentially serious
- Bacteria enters through disrupted skin
  - Normally occurs on the lower leg
- Skin appears swollen and red
  - typically painful and warm to the touch
- Not contagious, normally

## Cellulitis





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# Cellulitis

- Treatment
  - Prescription oral antibiotic
  - Serious cases may require IV antibiotics & hospitalization
- Return to Play
  - Athlete must have been without any new skin lesion for 48 hours before competition
  - Athlete must have completed 72 hours of antibiotic therapy and have no moist, exudative or draining lesions at competition time
  - Active purulent lesions shall not be covered to allow participation.

# **Furuncles/Carbuncles**

- Furuncles (boils)
  - Similar to folliculitis
  - Single infected follicle

- Carbuncles
  - Group of infected follicles
  - Larger & deeper

## **Furuncles/Carbuncles**



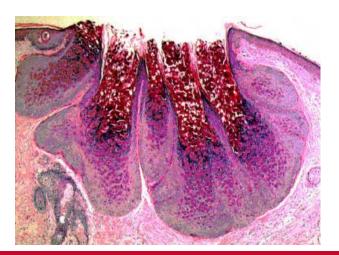
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# **Furuncles/Carbuncles**

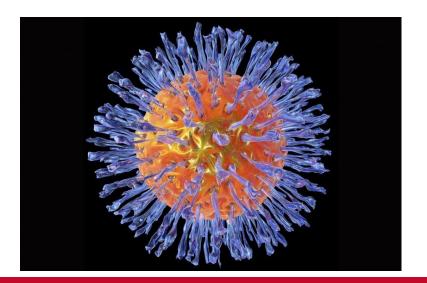
- Treatment
  - Warm compress
  - Incision and drainage
  - Antibiotics
- Return to Play
  - Athlete must have been without any new skin lesion for 48 hours before competition
  - Athlete must have completed 72 hours of antibiotic therapy and have no moist, exudative or draining lesions at competition time
  - Active purulent lesions shall not be covered to allow participation.

# **Viral Infections**

- Herpetic Infections
  - HSV 1
  - Shingles
- Molluscum Contagiosum



- Common Characteristics
  - Tend to be highly contagious
  - Most will be painful



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# **Herpes Simplex Virus**

- HSV-1
  - Oral herpes
    - Cold sores, fever blisters
  - Herpes Gladiatorum
    - Mat Herpes
- HSV-2
  - Genital herpes
- HHV-3
  - Varicella-zoster virus
    - Chickenpox and shingles

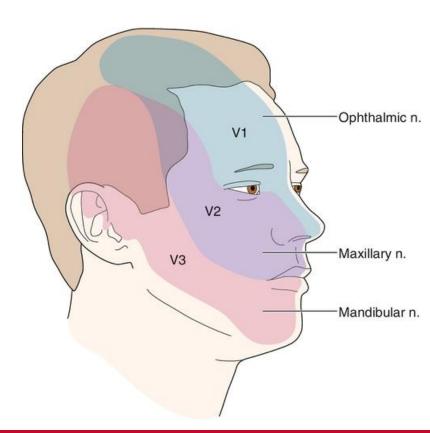
- HHV-4
  - Epstein-Barr
    - mononucleosis
- HHV-5
  - Cytomegalovirus
- HHV-6 & 7
  - Roseola Infantum
- HHV-8
  - Kaposi's sarcoma

## Mat Herpes (HSV 1)

 3-10 day incubation period

• Trigeminal nerve

 Often confused with Folliculitis



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## Mat Herpes (HSV 1)

• Fever and swollen glands may precede the appearance of sores or blisters

• Tingling sensation in the area affected by the virus.

Usually painful



## Mat Herpes (HSV 1)





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## **Mat Herpes**

- Treatment
  - Valacyclovir 500mg b.i.d. for 7 days (recurrent outbreaks)
    - 1 gr t.i.d. for 7-10 days for primary infections
- Return to play
  - Blisters must be completely dry and covered by a firm adherent crust at time of competition
  - Athlete must have been on appropriate dosage of systemic antiviral therapy for at least 120 hours at the time of competition
  - Active herpetic infections shall not be covered to allow participation

# Shingles

- Herpes Zoster (HHV-3)
- Varicella-Zoster virus
  - Chicken pox
  - lies inactive in nerve tissue and may reactivate years later
- Can occur anywhere on the body
  - single strip of blisters which wrap around either side of the torso

# Shingles



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# Shingles

- Treatment
  - No cure, vaccine is available (Shingrix)
  - Valacyclovir to lessen severity

- Return to Play
  - Skin lesions must be surmounted by a firm adherent crust at competition time, and no evidence of secondary bacterial infection

# **Molluscum Contagiosum**

- Relatively common viral infection of the skin
- Signs & Symptoms
  - round, firm, painless bumps ranging in size from a pinhead to a pencil eraser (1-10mm)

• If the bumps are scratched or injured, the infection can spread to surrounding skin

• Skin-to-skin transmission



## **Molluscum Contagiosum**

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# **Molluscum Contagiosum**

- Treatment
  - Various treatments
  - Lesions must be physically removed
- Return to Play
  - Lesions must be curetted or removed before competition
  - Solitary or localized, clustered lesions can be covered with a gas impermeable dressing, pre-wrap and stretch tape which is appropriately anchored and cannot be dislodged

# **Fungal Infections**

- Tinea
  - Corporis
  - Cruris
  - Pedis
  - Capitis
  - Versicolor



- Common Characteristics
  - skin changes, including red and possibly cracking or peeling skin
  - Itching
  - Moist, warm environs



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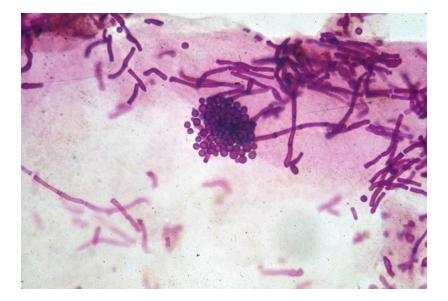
### **Ringworm** (Tinea Corporis)

• Characterized by a red circular rash

• Clearer skin in the middle, raised on edges

• Itchy (pruritic)

• Above the waist



## Ringworm



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# Ringworm

- Treatment
  - Topical antifungal
    - Clotrimazole (Lotrimin) or Terbinafine (Lamisil)
  - Oral medications for extensive lesions
    - Terbinafine and Itraconazole (liver)



# Ringworm

• Return to Play

 A minimum of 72 hours of topical therapy is considered appropriate therapeutic regimen to allow effective drug intervention for most tinea infections

 Active lesions may be covered to allow participation if lesions are in a body location that can be "adequately covered"

## Tinea Cruris (Jock Itch)

• More common in males

 Warm weather or when wearing wet and tight clothing

• Genitals, upper inner thighs and buttocks

## **Tinea Cruris**

• Scaly, pink border

• Can be quite itchy and may be painful

• Most common during the summer months

• Mildly contagious

## **Tinea Cruris**

- Treatment
  - Antifungal cream or lotion (miconazole, ketoconazole, or clotrimazole)
  - Keep area dry
  - Loose clothing

## **Tinea Pedis**

- "Athlete's foot"
- Between toes
- Scaly, itchy rash
- Stinging and burning
- Can be spread via contaminated floors, towels or clothing
- Onychomycosis





### **Tinea Pedis**





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## **Tinea Pedis**

- Treatment
  - OTC ointment, lotion, powder or spray
    - Terbinafine (Lamisil)
  - Severe cases may need prescription

• Return to Play

Athletes only need to be held out for severe cases

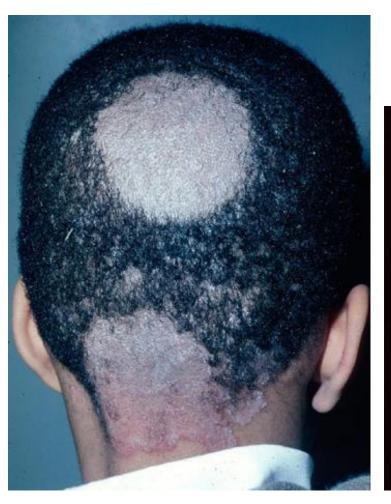
## **Tinea Capitis**

• Ringworm of the scalp

- Signs & Symptoms
  - Round, patchy, gray, scaly portion of the scalp
  - Hair loss (alopecia)



### **Tinea Capitis**





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# **Tinea Capitis**

- Treatment
  - Requires oral antifungal medications
    - >14 days
  - Antifungal shampoo (ketoconazole or selenium sulfide)
- Return to Play
  - A minimum of two weeks of systemic (oral) antifungal therapy is required for tinea capitus lesions

# **Tinea Versicolor**

- Pityriasis versicolor (yeast)
- Superficial fungal infection of the skin
  - often confused with Vitiligo
- Affects the skin's pigmentation
  - typically appear on the trunk and shoulders
- Warm, humid climates



## **Tinea Versicolor**

• Not contagious





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## **Tinea Versicolor**

- Treatment
  - Antifungal soaps and creams
    - selenium sulfide, ketoconazole, or pyrithione zinc
  - Medicated cleansers
  - Anti-fungal Pills

- Return to Play
  - Athletes do not need to be removed from participation

# **Other Conditions**

- Insects/Parasites
  - Scabies
  - Bed Bugs
  - Spider Bites

- Other Common Skin Disorders/Conditions
  - Dermatitis
  - Urticaria
  - Psoriasis

- Sarcoptes scabiei (mite)
  - Burrow and lay eggs inside the skin
  - Leads to relentless itching and an rash
    - Characterized by intense <u>night</u> <u>time itching</u>
  - Webbing of fingers & skin creases
  - Can spread
  - 2-3 days away from human skin



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 Rash looks like blisters or pimples: pink, raised bumps with a clear top filled with clear fluid





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Mite is .25-.4mm in length

- All clothes and bedding need to be cleaned
  - 122°F for 10'
  - Possible fumigation depending on infestation
- Pillows, hat, coats etc.

- Treatment
  - Scabicide lotions or cream
    - Permethrin cream 5% (Elimite)
    - Head to toes



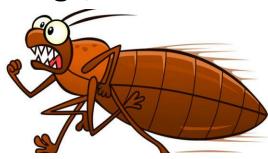
- Return to Play
  - Athlete must have negative scabies prep at competition time
  - 24 hrs after treatment

## Bed Bugs (Cimex lectularius)

• Small, oval, brownish insects

- live on the blood of animals or humans

- Adult bedbugs have flat bodies about the size of an apple seed
  - Bodies swell after feeding & are a reddish color
  - Not known to transmit any diseases
  - Typically found in mattresses, box springs, bed frames, and headboards



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# **Bed Bugs**

- Bites are painless
  - Turn into itchy welts
  - Exposed areas during sleep
  - Do not have a red spot in the center like flea bites
  - Cause red bumps and intense itchiness
  - Appear in a linear row,
    - most commonly found on the face, neck, arms, and hands



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### **Bed Bugs**





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# **Bed Bugs**

- Prevention
  - Vigilant while traveling
  - Wash and dry clothing on high heat
- Treatment
  - Cleaning
  - Pesticides



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# Ticks

- Diseases transmitted by ticks:
  - Lyme Disease
    - Deer tick
  - Rocky Mountain Spotted fever (RMSF)
    - Dog tick and wood tick
  - Alpha-gal syndrome
    - Lone Star tick
    - Allergy to red meat





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### **Tick Bites**



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# **Tick Prevention**

- Use a chemical repellent with DEET, permethrin or picaridin
- Wear light-colored protective clothing
- Tuck pant legs into socks
- Avoid tick-infested areas
- Check yourself and pets daily for ticks
- Carefully remove any ticks



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## **Spider Bites**

### **Brown Recluse**

### **Black Widow**





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### **Spider Bites**





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### **Flea Bites**

- Irregular pattern
- Ankles & feet





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## Dermatitis

- Contact dermatitis
  - Direct contact with allergen or irritant
    - soap, cosmetics, fragrances, jewelry, and poison ivy
  - Red rash wherever contact was made
  - Avoid the irritant or allergen
  - Creams or medications can help reduce itching



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## Urticaria

- Cold Urticaria
  - Raised welts, angioedema (swelling) or both
  - Hives or urticaria are localized itchy and swollen plaques of variable size
  - Lesions are fleeting
  - Last less than 24 and don't leave a trace

### Urticaria



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# Psoriasis

- Chronic skin condition caused by an overactive immune system.
- Symptoms include flaking, inflammation, and thick, white, silvery, or red patches of skin
- Not contagious

### Psoriasis



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## Psoriasis

- Treatment
  - Wide variety of options
    - Creams, lotions, soap, injections, oral medications
    - Light therapy, diet changes

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