

SPORTS DERMATOLOGY



P.Z. Pearce, M.D.

I. INTRODUCTION

Athletes are susceptible to the same dermatologic conditions as other patients, but participation in sports places unique stresses on the skin. Exposure to friction, trauma, and the environment predisposes to unique conditions, not normally seen in sedentary individuals. Skin disorders are a common source of patient visits to a Primary Care physician, but interestingly the top 10 diagnoses account for 65% of all appointments, and the top 20 for 82%. Similarly, there are roughly three-dozen skin conditions recognized in sports. These will be reviewed in the paragraphs below, including diagnostic and treatment recommendations. Each condition will be presented alphabetically, divided into the categories of Trauma, Environment, or Infection.

II. TRAUMA

Abrasion

Also known as *Road Rash*, or *Turf Burn*, this is the prototype friction injury. The exposed dermis is susceptible to infection, so it should be cleansed with Betadyne® or Hibiclens® after local anesthesia with 4% viscous xylocaine. Apply triple antibiotic ointment, and a dressing of Duoderm® or gauze and Microfoam® so the athlete can remain active. I recommend updating tetanus immunization every five years for athletes with frequent skin breaks exposed to dirt, such as bicycle racers, and baseball players.

Acne Mechanica

Although similar to acne vulgaris, this form occurs where there is friction, heat, and occlusion of pores by pressure on the skin. Examples are the forehead of football players and shoulder of golfers, where the strap of their bag rubs. Treatment includes decreasing friction, and topical (Cleocin-T gel) or systemic antibiotics, benzoyl peroxide, and retinoids.

Blisters

Shearing forces combined with moisture are the cause, aggravated by poorly fitted shoes. Prevention strategies include application of Vaseline®, or wearing a thin nylon sock under a heavier cotton one. Drain large blisters after cleansing, then apply triple antibiotic ointment and a Bandaid®. Duoderm® or Second Skin® as a dressing speed epithelialization, and may allow an athlete to continue with practice or competition.

Calluses

A painless friction injury that results in thickened stratum corneum. The shearing force is usually repetitive, and not great enough to cause a blister. Shave or pare them as necessary for comfort, and look for the underlying cause (usually poorly fitted footwear).

Cauliflower Ear

Shearing of the overlying skin deprives the ear cartilage of a blood supply. It then becomes necrotic, and is replaced with scar tissue that contracts and deforms the pinna. Immediate drainage of any hematoma, and application of a plaster 'cast' or pressure dressing may help prevent the progression to cauliflower ear.

Corns

Similar to calluses, but usually form over a bony prominence, and are painful. Pare them down to reveal a translucent 'kernel', which can be removed for pain relief. Corn plasters (40% salicylic acid) may help, but evaluate footwear and orthotics for prevention.

Jogger's Nipples

This painful condition is caused by chafing of clothing on the nipples, and is more common in men than women. It is best prevented with Vaseline® or a protective Bandaid®.

Jogger's Toe

Subungual or periungual hemorrhage caused by repeated toe impact on the front of the shoes. It can be mistaken for malignant melanoma, especially if it is unilateral, or extends to the nail fold (Hutchinson's sign). Material retrieved from under the nail will be heme-positive if it is traumatic, as opposed to melanoma. Prevent this injury by wearing shoes with a larger toe box.

Piezogenic Pedal Papules

Tiny (2-3 mm), yellow nodules caused by herniation of fat through the tissues on the lateral aspect of the heel. They are common in distance runners, and those who are obese. If painful, a heel cup may help, but there is really no specific treatment.

Striae Distensae

Stretch marks occur in areas of the skin that are subjected to continuous and progressive stretching. Damaged collagen and elastin, combined with destruction of the epidermis, result in the typical linear dermal scars. They are more common in pregnant women and adolescents, with increased adrenocortical activity. Think steroid use, when the pattern is not typical (outer thighs / buttocks / lumbosacral region). Topical tretinoin can be beneficial.

Subungual Hematoma

The result of direct trauma (acute), or the repeated impact of toes into the front of running shoes (chronic). If painful, they can be drained with a hot-wire, or heated paper clip.

Talon Noir / Tache Noir

Black heel, caused by shearing and subcutaneous hemorrhage in athletes who start and stop suddenly (basketball, tennis, racquetball). It can mimic malignant melanoma, so shave the epidermis and verify that you can remove the pigment. When in doubt, biopsy. *Tache Noir* is the same lesion in the hands of athletes who grip, such as weight-lifters, and baseball players.

III. ENVIRONMENT

Actinic Keratosis

Repeated sun exposure causes these pre-cancerous lesions characterized by small, scaled patches on the face, ears, and hands. Easily eradicated with liquid nitrogen.

Basal Cell Carcinoma

Characterized by a raised pearly border, with necrotic center, they spread through local invasion and rarely metastasize. They may also present as rough, scaly patches, especially on the scalp, so I biopsy any chronic lesion. Chronic sun exposure is a definite risk factor

Chill Blains

Repeated exposure to freezing temperatures leads to red, rough, pruritic thickening of the skin. It is harmless, but easily prevented.

Cholinergic Urticaria

This benign, but annoying condition is caused by hyper-reactivity to acetylcholine in peripheral nerve endings. There is a pruritic rash of 1-2 mm papules surrounded by erythematous halos, and occasionally associated wheezing. It can be blocked with anti-histamines (such as Seldane® or Zyrtec®, and *must* be distinguished from *Exercise Induced Anaphylaxis*, a potentially fatal condition. The latter has a characteristic rash of 10 mm urticaria, and is associated with food allergy. Although it may respond to anti-histamines, athletes who have had EIA should carry an Epi-Pen® with them while exercising.

Cold Urticaria

Some people respond to application of cold on their skin, by developing hives. This can be tested with an ice cube, which will induce the reaction. Watch for cold intolerance in diabetics, and those with connective tissue disorders, such as rheumatoid arthritis.

Contact Dermatitis

Think contact, when the pattern of eruption matches a piece of clothing or equipment. Sweat, neoprene, or rubber products, as well as medications and fragrances are often the culprit. A common reaction in the 1970's was allergy to ethyl butyl thiourea, used in the glue of Nike® running shoes. *Nike Shoe Dermatitis* is much less common, since the glues have been changed. Avoidance, and use of topical or oral steroids is usually effective.

Dysplastic Nevus Syndrome

Athletes with several large (> 7 mm) nevi, may have the dysplastic nevus syndrome, which carries a 20-100% lifetime risk of developing malignant melanoma. Once again, biopsy all suspicious skin lesions, or those that do not respond to treatment.

Frost Bite (Frost Nip)

Mild freezing of the skin produces a white discoloration known as frost nip, most commonly seen on the nose, cheeks, fingers and toes. Deeper frostbite is analogous to a burn, and may blister. Wind and sweat-soaked clothing accelerate the formation of ice crystals in the superficial layers of the skin. Treatment consists of rapid rewarming, analgesia, and time.

Green Swimmer's Hair

Copper leached from pipes supplying a pool or hot tub binds with blonde or gray hair, producing the green discoloration. Keeping the pH between 7.4 and 7.6 seems to be preventive, but once affected certain shampoos, and hydrogen peroxide (3%) are helpful.

Jellyfish Sting

There are over 100 toxic jellyfish, which produce symptoms ranging from mild irritation to death. For typical box jellyfish stings, rinse with seawater then apply acetic acid (vinegar), meat tenderizer, or urine to dissolve the protein-based toxin.

Malignant Melanoma

The incidence of melanoma has increased from 1:1500 in 1950, to 1:70 currently. Fair-skinned athletes with red or blonde hair, and greater than 2 blistering sunburns before age 18, are at greatest risk. Since it can be fatal, and is not always typical in appearance, I biopsy *any* suspicious lesion.

Phototoxic Reaction (Sunburn)

Sunburn is the prototype reaction, often accelerated in athletes taking photosensitizing medications, such as tetracycline, sulfa, Accutane®, and all NSAID except aspirin. Topical steroid may help decrease inflammation, but the oral form is no more effective than NSAID. Prevent sunburn with a waterproof screen, at least SPF (sun protection factor) 25 or higher.

Squamous Cell Carcinoma

Chronic sun exposure causes this common skin cancer, second only to basal cell carcinoma in prevalence. Excision is the preferred method of treatment.

Swimmer's Xerosis

Dry skin caused by chlorine or hot water, which denature the natural sebum present in skin. Limiting exposure, oil-based soap (Dove®), and liberal use of moisturizers help.

IV. INFECTION

Endurance athletes, such as distance runners, cyclists, and hockey players are often susceptible to opportunistic infection from fungi, and viruses. Muscle tissue requires glutamine for recovery, and usually monopolizes the body's limited supply in these athletes. Lymphocytes, which also require this amino acid, simply don't have enough for proper function. I usually supplement endurance athletes with 500 – 1,000 mg twice a day, while training and racing.

Bikini Bottom (Saddle Sores)

Usually the result of wearing a wet bathing suit for prolonged periods, this deep bacterial folliculitis is caused by staph or strep. A similar condition (saddle sore) occurs in cyclists with sweat-soaked bike shorts. Oral Keflex® 500 mg TID for ten days, and good hygiene are usually effective. See MRSA below, if it does not seem to be responding to treatment.

Herpes Gladiatorum

Herpes simplex is responsible for this vesicular dermatitis, often seen in wrestlers. Zovirax® or Valtrex® are effective, but cleaning equipment with bleach is mandatory.

Hot Tub Folliculitis

Pseudomonas causes this self-limited condition, which may require oral Ciprofloxacin® for treatment. Maintaining the chlorine (or bromine) level is preventive, but once the organism is present, it is usually necessary to drain the pool, and refill it.

Impetigo

Staph and strep cause this yellow-crusting infection of superficial wounds or abrasions. Bactroban® topically, or oral Keflex® are effective, but see MRSA below.

Methicillin-Resistant Staph Aureus (MRSA)

Recently, up to 30% of infections with *Staphylococcus* are resistant to methicillin and other typical antibiotics. For superficial infection (skin, urine) the addition of Septra DS® (2 tabs BID) to Keflex® 500 mg QID is usually effective, but pulmonary infections require intravenous vancomycin. Our ID specialists have also found that 95-97% of isolates are sensitive to doxycycline 100 mg BID, as an alternative for those who are allergic to penicillin or sulfa.

Molluscum Contagiosum

Raised, discrete papules, with a dimpled center characterize this harmless viral infection. They may be repeatedly curetted, but I prefer to freeze with liquid nitrogen.

Onychomycosis (Tinea Unguam)

Yellow, thickened, discolored nails are common in athletes, due to a number of fungi and yeasts. Trim nails as far as possible, then use oral anti-fungals (Lamisil® 250 mg QD for 12 weeks, Sporanox® 200 mg QD for 12 weeks, or Diflucan 200 mg weekly for 6-9 months). Culture of the nail material may help guide diagnosis in resistant cases.

Pitted Keratolysis

Corynebacterium lyses the stratum corneum in this malodorous foot condition, which presents as sharply marginated, but superficial erosions. The foot is also usually quite moist, so drying agents (Drysol®) are helpful. Treatment includes application of clindamycin solution or gel twice daily, wearing white socks (dye-free), and sterilizing the soles of shoes (bleach, sun drying).

Pityrosporum Folliculitis

Common fungal infection of the neck, shoulders and upper back, often mistaken for acne or bacterial folliculitis. In contrast to acne, there are usually few facial lesions. Caused by *pityrosporum orbiculare*, it responds to oral anti-fungals or ketoconazole 2% shampoo applied for 15 minutes then showered off. It often takes several weeks of treatment to resolve.

Seabather's Eruption

Commonly seen in Florida and the Caribbean, it is caused by larva of *Edwardsiella lineate* or *Linuche unguiculata* (thimble jellyfish), trapped under the bathing suit. Symptoms include a stinging sensation, then pruritic, vesiculopapular eruption within 24 hours of exposure. Oral antihistamines, and topical steroids can be used, showering after bathing is preventative.

Swimmer's Ear

Usually the result of *Pseudomonas*, growing in the moist external auditory canal. A few drops of rubbing alcohol (with glycerin) in both ears after swimming is usually preventative. Ciprofloxacin drops are very effective treatment.

Swimmer's Itch

Caused by the larva of fresh-water schistosomes (flatworms), this self-limited condition can be prevented by rinsing off (and removing the bathing suit) after swimming. Oral antihistamines, and topical steroids may provide symptomatic relief.

Swimming Pool Granuloma

Caused by exposure to *Mycobacterium marinum*, it presents with indurated papules or nodules involving the knees, elbows, and dorsum of the hands. Symptoms are often minimal, but the lesions may ulcerate. Prolonged treatment with rifampin 600 mg and ethambutol 1.2 gm daily for 3-4 months is often required, but minocycline 100-200 mg daily for 6-12 weeks may be effective.

Tinea Corporis Gladiatorum / Tinea Pedis / Tinea Cruris (Jock Itch)

Tinea causes many superficial infections in athletes, particularly those in close contact, such as wrestlers. Prevent by covering lesions, keeping facilities (mats) clean, and not sharing equipment. Topical anti-fungals are usually adequate for most infections, oral therapy is indicated for inflammatory or widespread disease, and failed topical therapy.

Tinea Versicolor

Rust colored or hypopigmented patches on the chest and back characterize this harmless infection. Nizoral® shampoo applied for 15 minutes and rinsed will eradicate the dermatophyte.

Warts (Verucca)

Verucca viruses cause a number of hyperkeratotic lesions (warts). Those on the sole of the foot (plantar warts) can be painful and limit activity. Most warts respond to deep-freezing with liquid nitrogen, but an alternative is 40% salicylic acid plaster. Apply the patch (Mediplast®) for 24 hours, remove and file dead skin with a nail file. Leave off for 24 hours, and repeat until resolved. This is a less painful alternative, which will allow the athlete to train and compete.

V. REFERENCES

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